

SERVICE MANUAL



Split Wall-Mounted Series Air-Conditioners



CONTENTS

- Chapter 1 **photos and Features of products**
- Chapter 2 **Operating Principle**
- Chapter 3 **operation details**
- Chapter 4 **Exploded Views of the Production**
- Chapter 5 **Main Technical Data**
- Chapter 6 **Dismantling Procedure**
- Chapter 7 **Brief introduction of installation**
- Chapter 8 **Fault Analysis of the Product Available**

Chapter 1 photos and Features of products

Features of outlook and construction



ASW-H07B4/HSAR
 ASW-07B4/HSAR
 ASW-H09A4/HSAR
 ASW-09A 4/HSAR
 Deep x width xhigh 165x802x262



ASW-H07B4/HSR
 ASW-07B4/HSR
 ASW-H09A 4/HSR
 ASW-09A 4/HSR
 Deep x width xhigh 165x802x262



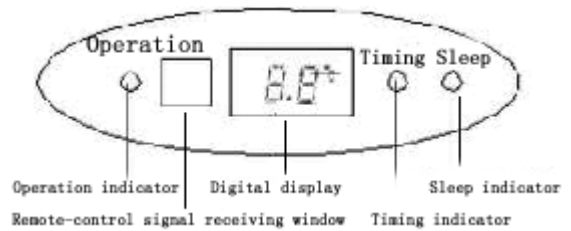
Deep x width xhigh 260x760x540
 All types



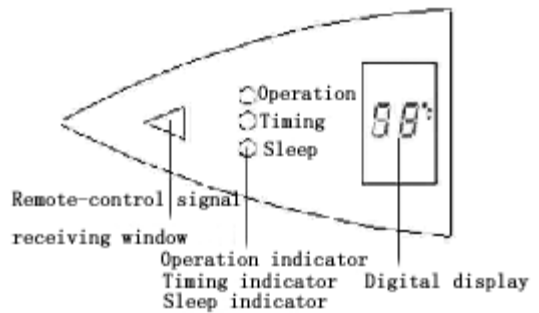
All types

Operation interface

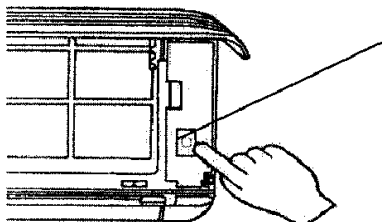
■ Inner operation interface of Type HSAR



■ Inner operation interface of Type HSR



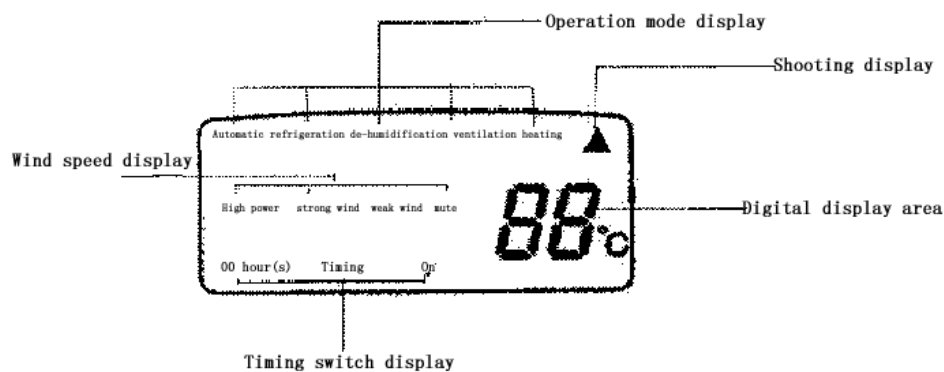
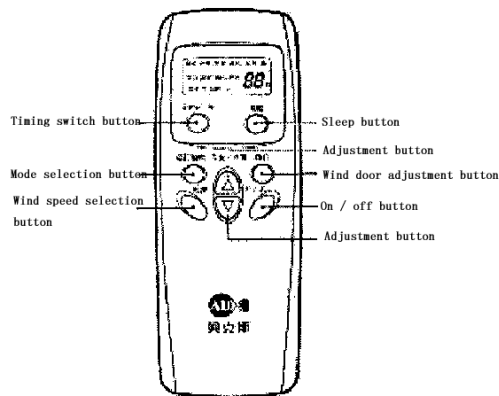
Emergency operation button of indoor types:



Compulsory button

- 1) When the air-conditioner works with the absence of remote control, it will stop working by pressing the compulsory button and it will resume working by pressing the compulsory button once again.
- 2) When remote control is useless, you can adopt the compulsory operation by which the air conditioner will go into automatic operation mode.

The operation interface of remote control:



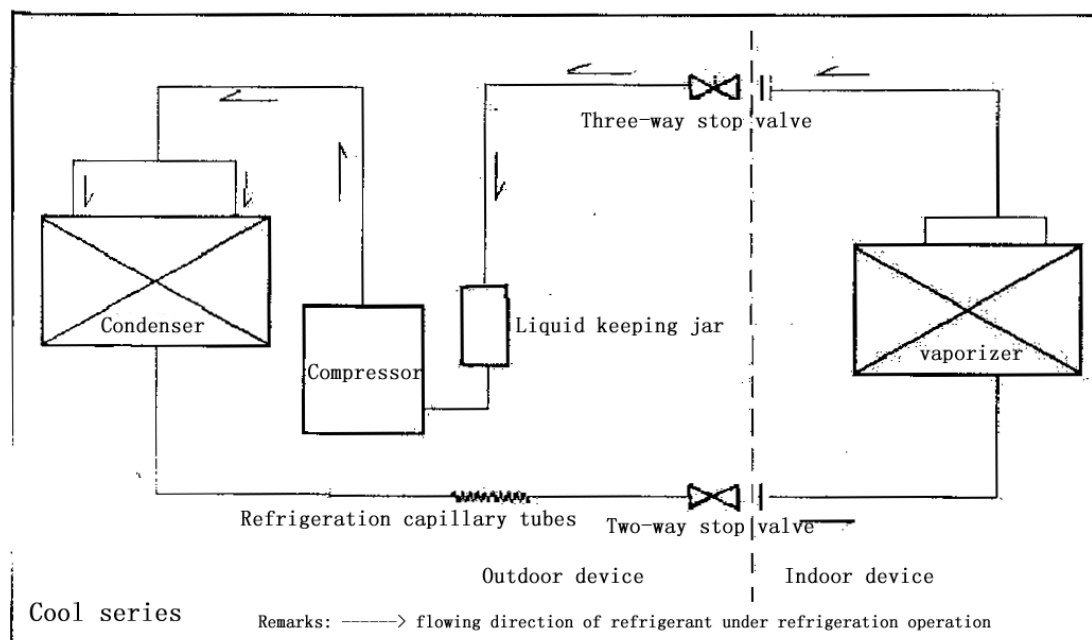
□□ Features of products

1. Fashionable appearance
2. Compact Design
3. 7 Hours of Sleep Mode Operation
4. Economy Mode to Reduce Electrical Power Consumption
5. Clean breath efficient biological antibacterial filter gauze made from green plant elite refined by using international leading technology, with the function of filtering and suppressing bacteria, and able to absorb and kill various pathogens and harmful gases efficiently for a long period, prevent secondary pollution caused due to microorganism spreading, and ensure the health of your family
6. R407c cold medium is applied, environment-friendly, and avoid damages to ozonosphere
7. International famous-brand Toshiba Hitachi and Matsushita compressors are applied

Chapter 2 Operating Principle

. Cooling

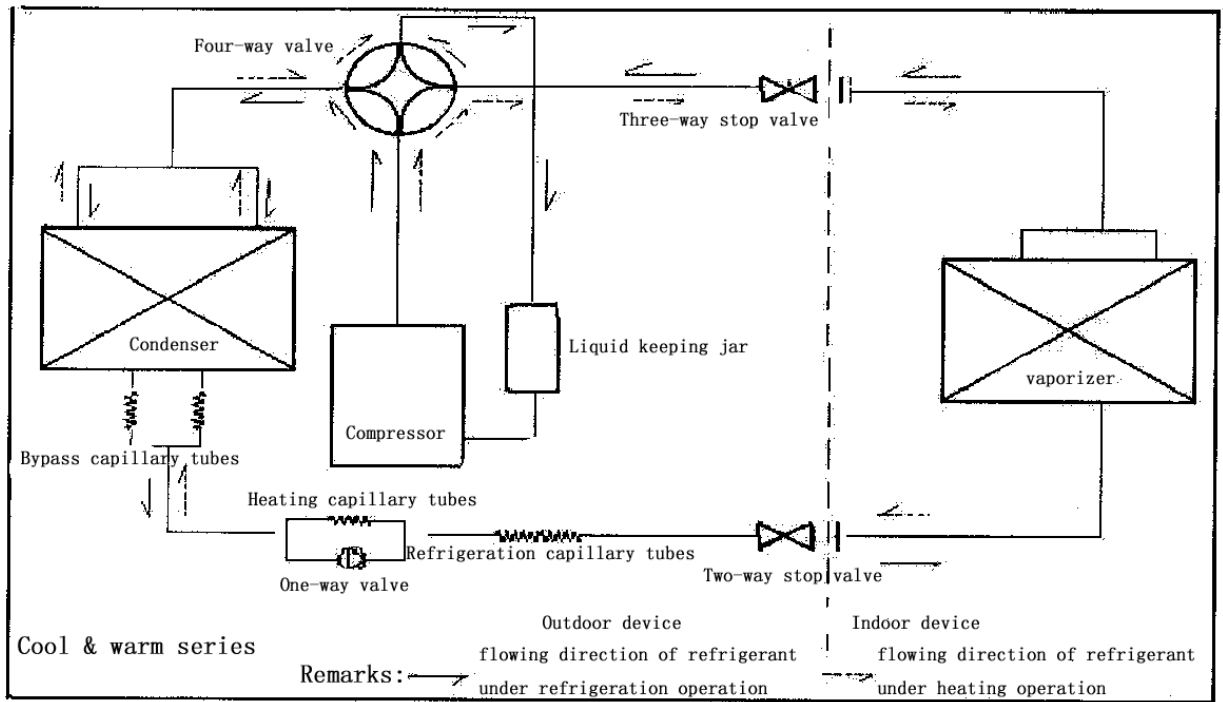
After the power supply is switched on, the machine is set to COOL mode. With the compressor being operated, the low-temperature and low-pressure refrigerant vapor is sucked into the compressor where it is



turned into high-temperature and high-pressure gas. Then it is cooled down in the outdoor heat exchanger by the air and becomes liquid. After being throttled by the capillary, the refrigerant liquid comes into the indoor unit and then it evaporates in the indoor heat exchanger, absorbing heat and reducing the room temperature. The evaporated refrigerant vapor returns to the outdoor unit and is again sucked into the compressor, completing the cycle. With the refrigerant cycling being kept on, the objective of lowering the room temperature is fulfilled.

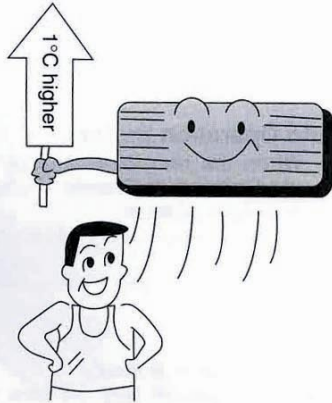
□. Heating

After the power supply is switched on, the machine is set to HEAT mode and the coil of the electromagnetic four-way valve is energized. After the compressor starts to operate, the high-temperature and high-pressure refrigerant gas first comes into the heat exchanger of the indoor unit, where it is cooled, releases heat and increases the room temperature. The cooled high-pressure refrigerant is then throttled in the outdoor unit and returns to the compressor after evaporation. With such cycles being maintained, the objective of increasing the room temperature is fulfilled.

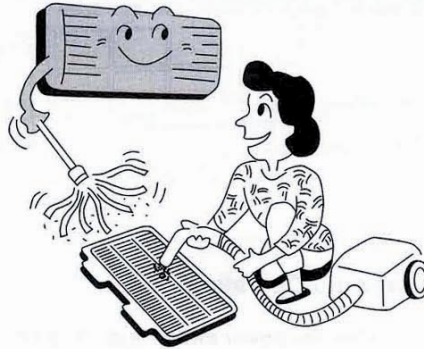


Operation Hints

Adjust room temperature properly. Set the temperature 1°C higher than actually desired. Approximately 10% of electricity costs can be saved.



Clean the air filter regularly. Blockage in the air filter reduces the airflow and lowers the cooling. Clean at least once every 2 weeks. Otherwise, 6% of electricity cost will be wasted.



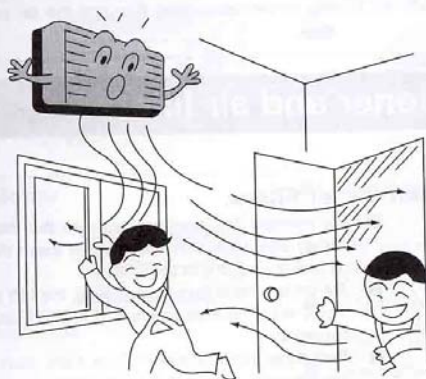
Prevent waste with the Timer. Use Timer when sleeping or going out to save electricity cost.



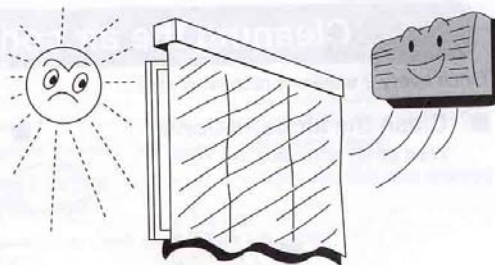
Do not block the air outlet vents at outdoor unit. Otherwise, it will lower the cooling performance.



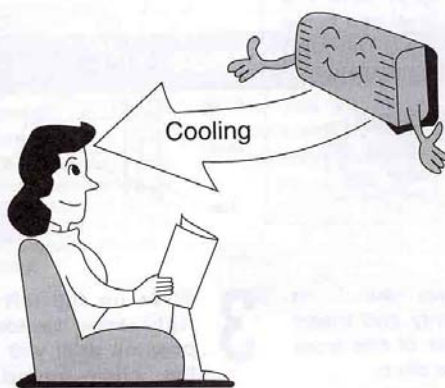
■ Make sure that the doors and windows are shut. Otherwise, cooling performance will be reduced and electricity cost is wasted.



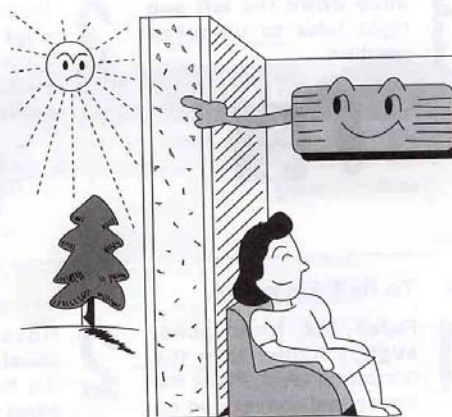
■ Keep blinds or curtains closed. Do not let sunshine enter the room directly. 5% of electricity cost can be saved.



■ Proper airflow direction adjustment. Set the air-flow direction louvers horizontal for Cooling Operation. Operation result will be better.



■ Use insulating material for better performance. Use insulating material during construction or renovations. It will save electricity cost.



Chapter 3 operation details

1. Overall

1.1 Protection of compressor

Whatever operation modes the air-conditioner is under, there will always be 3 minutes' time-delay protection unless it is on for the first time. When the compressor is switched on, it can not be shut down within 3 minutes (except under the modes of heating or defrosting) unless it is powered off or its operation mode is changed.

1.2 The operation indicator will turn light when the air conditioner is powered on.

1.3 The buzzer will sound immediately after the controlling device receives a correct and effective signal sent by the remote control.

1.4 Timing function can be applicable to all operation modes while sleep function can only be applicable to the modes of refrigeration and heating.

2. Automatic operation mode

2.1 When the air conditioner works, it can detect the indoor temperature automatically whereby its operation mode can be selected: refrigeration, heating or dehumidification.

2.2 When the indoor temperature reaches more than 27 °C, the air conditioner will operate under the mode of refrigeration.

2.3 When the indoor temperature reaches between 20 °C and 27 °C the air

conditioner will work under the mode of dehumidification (always mute).

2.4 When the indoor temperature reaches less than 20 °C, the air conditioner will work under the mode of heating.

2.5 Under this mode, the air conditioner will operate in the respect of blowing rate as set and its pendulum leaves will work according to the requirements of automatic ventilation door.

2.6 Once the operation mode is selected, it will not be able to be changed. When the air conditioner is shut down and then restarted, the operation mode will be selected once again based on the variation of indoor temperature.

2.7 After the operation indicator has been flickering for 20 seconds, it will turn light steadily (i.e. the determination of operation mode will start in 20 seconds.)

2.8 This mode has timing function, does not have sleep function.

2.9 Under this operation mode, the temperature can be set and adjusted by remote control.

3. Refrigeration mode

3.1 Under the refrigeration mode, the range of temperature set by remote control is between 16 °C and 32 °C.

3.2 Shut-down of four-way valve;

3.3 The condition on which the compressor starts is that the indoor

temperature reaches more than the temperature set plus 1 while the condition on which the compressor shuts down is that the indoor temperature reaches less than the temperature set minus 1 .And when the indoor temperature is equal to that set, the original operation mode will be kept.

3.4 Under the mode of refrigeration, the function of preventing indoor coiled pipe from being frozen will be effective.

3.5 The indoor wind speed will be as set. And the pendulum leaves will work according to the instructions sent by remote control.

4. Dehumidification operation

4.1 The temperature range set and controlled is between 16 and 32 .
The temperature will be set by remote control.

4.2 The four-way valve is shut down.

4.3 The wind speed gear-changes to “mute”. And the pendulum leaves works according to the instructions sent by remote control;

4.4 The function of preventing indoor coiled pipe from being frozen is effective.

4.5 When the indoor temperature reaches less than 16 , the function of dehumidification is out of use.

4.6 When the indoor temperature reaches more than 16 , the compressor will be switched on and work intermittently. The time when the compressor shuts down depends on T ring and T ring-T set.

When the compressor is shut down, the outdoor fan and indoor fan will stop working.

When $T_{ring} \geq 23$ °C

$T_{set} < T_{ring} - 1$, the compressor will be working for 8 minutes and then stopping for 3 minutes in cycles.

$T_{set} \geq T_{ring} - 1$, the compressor will be working for 3 minutes and then stopping for 6 minutes in cycles.

And when $T_{ring} < 23$ °C

$T_{set} \leq T_{ring} - 1$, the compressor will be working for 3 minutes and then stopping for 4 minutes in cycles.

$T_{set} > T_{ring} - 1$, the compressor will be working for 3 minutes and then stopping for 6 minutes in cycles.

5. Function of ventilation control

5.1 Under the mode of ventilation, the outdoor fan assembly will always be shut down.

5.2 The indoor fan will operate as set in the respect of air quantity without the gear- change of "high power".

5.3 The pendulum leaves will work according to the instructions sent by remote control.

6. Heating function

6.1 Under the mode of heating, the temperature range set is between 16 and 32 °C. And the temperature will be set by remote control.

6.2 When the air conditioner is powered on, the outdoor fan, four-way valve and compressor will start at the same time while when it is shut down, the outdoor fan and compressor will be shut down at the same time and so will the four-way valve after 2 minutes' delay.

6.3 Under the mode of heating, the compressor can not be shut down within 3 minutes after it is powered on unless the operation mode is changed or the air conditioner is turned off.

6.4 There is a 3 °C temperature compensating function. The temperature measured at the in-blow vent minus 3 °C automatically can be regarded as that compared with the temperature set (This function does not exist under other circumstances).

6.5 According to the temperature set, the condition upon which the compressor will be switched on is indoor temperature \leq temperature set-1 °C. While the condition upon which it will be switched off is indoor temperature is indoor temperature \geq temperature + 1 °C. When the indoor temperature is equal to that set, the original operation mode will be kept.

6.6 Indoor fan control:

6.6.1 Heating operation and prevention of cold wind

When the compressor works:

1. During the rising process of the temperature of coiled pipe, the indoor fan will not start if the temperature of the coiled

pipes is less than 25 .

2. When the temperature of coiled pipe reaches less than 35 But more than 25 , The indoor fan will work under the mode of “ mute”. If the temperature of coiled pipe ascends to 25 and then descends, it will stop working only when the temperature is lowered to 22 .
3. When the temperature of coiled pipe reaches more than 35 , the indoor fan will operate as set in the respect of wind speed. If the temperature of coiled pipe ascends to 35 And then descends, it will enter into the operation mode of “ mute” only when the temperature is lowered to 30 .

6.6.2 Afterheat-blowing function:

6.6.2.1 When the compressor stop working:

1. When the temperature of coiled pipe is more than 35 , the indoor fan will operate as set in respect of wind speed.
2. When the temperature of coiled pipe is more than 25 , but less than 35 , The indoor fan will operate under the mode of “ mute”
3. When the temperature of coiled pipe is less than 25 , the indoor fan will stop working.

6.6.2.2 The afterheat-blowing function when the air conditioner is just

shut down: If the temperature of indoor coiled pipe reaches more than 30 , The indoor fan will operate under the mode of “ mute”; If

it lowers to less than 30 °C, the indoor fan will be shut down; And the time when the afterheat blows will last less than 40 seconds after the indoor fan is turned off.

6.7 Defrosting operation:

6.7.1 The conditions upon which the outdoor sensor goes into operation are as below:

1. Under the circumstance of heating, if T external coiled pipe is at the temperature of less than -6 °C which lasts 2 minutes and the accumulated working time of compressor reaches more than 50 minutes (if there is any power cut-off or shut-down by remote control, the accumulated working time of compressor shall be re-calculated), the defrosting interval will be more than 50 minutes and the compressor will be working 5 minutes continually.
2. If there is any damage to the external coiled pipe, the accumulated working time of compressor will reach 50 minutes (if there is any power cut-off, shut-down by remote control or defrosting, the accumulated working time of compressor shall be re-calculated) and the defrosting operation will last 10 minutes.

6.7.2 Once one of the following conditions is satisfied, the defrosting will end:

1. The temperature of T external coiled pipe is more than 12 °C.
2. Defrosting duration is more than 12 minutes.

6.7.3 The requirements of defrosting operation:

1. Sleep indicator flickers at the speed of 1 time per second
2. When defrosting operation starts, the compressor and indoor fan will stop working while outdoor fan and four-way valve will continue to work.
3. The four-way valve and outdoor fan will stop operating in 30 seconds.
4. 15 seconds after that, the compressor starts and goes into defrosting operation.
5. After the defrosting ends, the compressor stops working. And the four-way valve and outdoor fan begins to work in 20 seconds.
6. 20 seconds after that, the compressor starts and goes into heating operation. And the indoor fan enters into the prevention mode of cold wind.

6.8 Auxiliary electric heating function

6.8.1 Only if the following conditions are satisfied under the heating operation, can the auxiliary electric heating go into operation automatically.

- a. The compressor works for 4 minutes by heating pump
- b. Indoor temperature is less than 22 ;
- c. The temperature set-indoor temperature is more than 3 ;

- d. Indoor fan goes into operation;
- e. Indoor coiled pipe temperature is less than 48

6.8.2 Once one of the following conditions is satisfied, auxiliary electric heating operation will end:

- a. Indoor temperature is more than 22 .
- b. The temperature set –indoor temperature is less than 2 .
- c. When Indoor coiled pipe temperature is more than 52 , the electric heating operation will end.
- d. Indoor temperature sensor becomes abnormal.

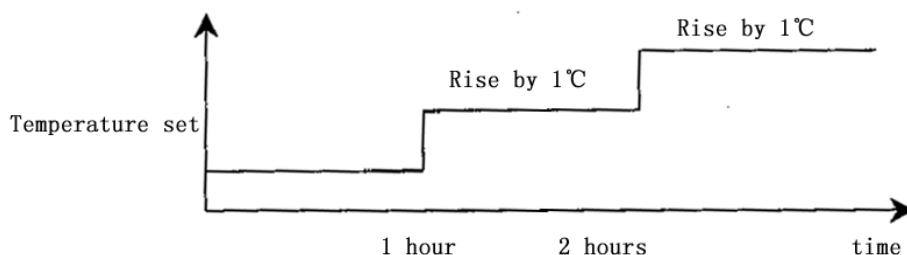
6.8.3 If compressor or indoor fan stops working, the electric heating will stop operating as well.

6.8.4 During the operation of compressor, if the auxiliary electric heating stops working, it can be restarted only in 1 minute.

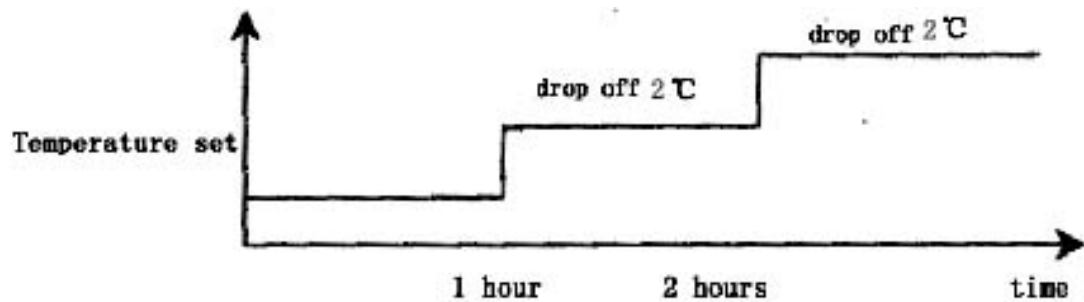
7. Sleep operation

7.1 When the air conditioner enters into the mode of sleep, the indoor wind speed will turn into the air quantity of “mute”.

7.2 When the sleep operation goes under the mode of refrigeration, the temperature set rises by 1 automatically every one hour. And the air conditioner will be powered off after sleep mode has worked for 7 hours.



7.3 When the sleep operation goes under the mode of heating, the temperature set drops by 2 automatically every one hour. And the air conditioner will be powered off after sleep mode has worked for 7 hours.



7.4 When the button of mode selection is pressed down, the function of sleep will be cancelled.

7.5 Sleep operation is effective under the modes of refrigeration and heating. When sleep button is pressed down, the sleep operation can begin or end.

7.6 Sleep function does not exist under the automatic mode, the situation of dehumidification or the circumstance of ventilation.

8. Timing operation

8.1 When timing is set, timing indicator will turn light.

8.2 The time set by timing is 12 hours at most. The timing unit is 1 hour. Even if the operation mode is changed, the timing function will still work.

8.3 Power-off at a fixed time

The power-off at a fixed time can be set only if the air conditioner is on. And it continues to work though the power-off at a fixed time has been already set. When it comes to the fixed time, the indoor and outdoor fans will be shut down.

8.4 Power-on at a fixed time

The power-on at a fixed time can be set only if the air conditioner is on. And it continues to be off though the power-on at a fixed time has been already set. When it comes to the fixed time, the indoor and outdoor fans will start to operate.

9. Emergency switch

When the soft-touch switch is pressed, the air conditioner will be powered on and the operation indicator will flicker (1 time per second). And it goes into the mode of automatic operation in 20 seconds. When the soft-touch is pressed once again, it will be powered off. When the air conditioner goes under the mode of automatic operation, the air door will assume the appearance of automatic air door. Under the mode of heating or refrigeration, the temperature set will be 24 and the wind speed will turn that under the “high power” mode. Under the dehumidification operation, the temperature set will be T ring-2 and the air conditioner can work upon the instructions sent by remote control.

10. Overload control and various protection functions:

10.1 Temperature control (overheat protection).

10.1.1 This function can only be applied to the mode of heating, not others.

10.1.2 When the temperature of indoor coiled pipe reaches more than 57 , outdoor fan will stop working.

10.1.3 When the temperature of indoor coiled pipe drops to less than 52 , outdoor fan will resume to operate normally.

10.2 Temperature cut-off control function (overheat protection)

10.2.1 This function can only be applied to the mode of heating, not others.

10.2.2 When the temperature of indoor coiled pipe reaches more than 64 which lasts more than 10 seconds, the compressor and outdoor fan will all stop working.

10.2.3 After 3 minutes' shut-down, the compressor will resume to operate if the temperature of indoor coiled pipe drops to less than 52 .

10.3 Function of preventing indoor coiled pipe from being frozen (supercooling protection).

10.3.1 This function can only be applied to the operation mode of refrigeration or dehumidification, not others.

10.3.2 When the temperature of indoor coiled pipe drops to -2

which lasts more than 2 minutes, the compressor will stop operating and the indoor fan will go by air quantity set.

10.3.3 When the compressor stops working, it can only be restarted only if the temperature of indoor coiled pipe rises to more than 7 or the power-off of the compressor lasts more than 6 minutes.

10.4 Protection function of short or open circuit of temperature sensor

10.4.1 Powered on, when it is detected that the T ring signal sent by indoor environment temperature sensor is abnormal, the air conditioner will work under the mode of heating and will not be powered off if the signal received from remote control is “heating” or it will work under the mode of refrigeration and will not be powered off if the signal received from remote control is “refrigeration” or it will work for 8 minutes and then stop for 3 minutes with the wind speed of “mute cycle dehumidification” if the signal received from remote control is “dehumidification”. Besides, the signal of automatic mode sent by remote control will not be effective, nor will the signal of automatic button power-on and the related breakdown can be indicated at the same time.

10.4.2 When it is detected that the T internal coiled pipe signal sent by indoor coiled pipe temperature sensor is abnormal, the freezing-proof, cold-wind-proof and overheat-proof functions

will be screened. Under the mode of heating, when the compressor is powered on, indoor fan will be started after 30 seconds' delay with the wind speed as set while when compressor is powered off, indoor fan will be turned off after 30 seconds' delay and the related breakdown can be indicated at the same time.

10.4.3 When it is detected that the T external coiled pipe signal sent by outdoor coiled pipe temperature sensor is abnormal, the air conditioner will work for 50 minutes, defrost for 10 minutes and heat in cycles if the signal received from remote control is "heating" and the related breakdown can be indicated at the same time while the air conditioner will not be powered off and will operate normally if the signal received from remote control is heating or defrosting or ventilation and the related breakdown can be indicated at the same time.

10.5 disposal of indoor PG electric motor abnormality

When indoor PG electric motor is loaded with voltage, the indoor fan will operate under the mode of "weak wind" automatically if the pulse signal feed backed by the indoor electric motor is not detected within 12 seconds. If the feedback signal detected is normal, the indoor fan will resume the turning speed set and the related breakdown indication will be disappear.

10.6 Function of charatron display

When the controller is normal, there will be no charatron display under the circumstance of power-off. When air conditioner is powered on, the charatron will display room temperature under the normal situation. If the temperature set is changed, the charatron will show the temperature set which sparkles at the rate of 1 time per second. Then it will display room temperature once again in 5 seconds. The display range of room temperature is 0~79 .

11. Function of breakdown indication

HS, HSA series (charatron); HV (VFD display)

Breakdown cause	Display way	Display priority class
PG feedback abnormality	E4	1
T ring abnormality	E1	2
T internal coiled pipe abnormality	E3	3
T external coiled pipe abnormality	E2	4

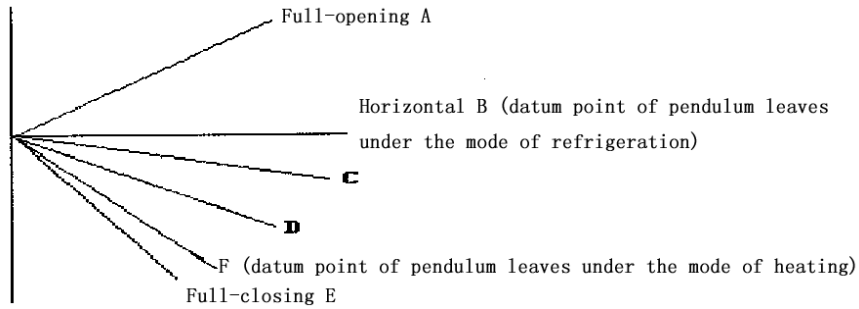
12. Adjustment function of air door direction by pendulum leaves

- 12.1 When the air conditioner is powered on for the first time, the pendulum leaves will move to the direction of full-opening and then to the direction of full-closing wherever they are placed.
- 12.2 When the air conditioner is powered off, the pendulum leaves will move up to “close” position immediately wherever they are placed after the fan comes to an end.
- 12.3 Under the mode of refrigeration, the pendulum leaves will first move to the full-opening position and then move to the horizontal position and at last move under the mode set while under the mode of heating, they will first move to the full-opening position and then backswing by 5° and at last work under the mode set (for details, please see the following diagram).
- 12.4 Pendulum wind: automatic air door and manual air door will be controlled by one button.
- 12.5 When the pendulum leaves move from full-opening position to full-closing position at the time of power-on or from starting position to full-closing position at the time of power-off, the speed will be 20° per second while the speed under the instruction situation will be 5° per second.

Swing angle under the mode of refrigeration: BD is 35 ± 2

Swing angle under the mode of heating: FC is 40 ± 2

Backswing angle under the mode of heating: EF is 5



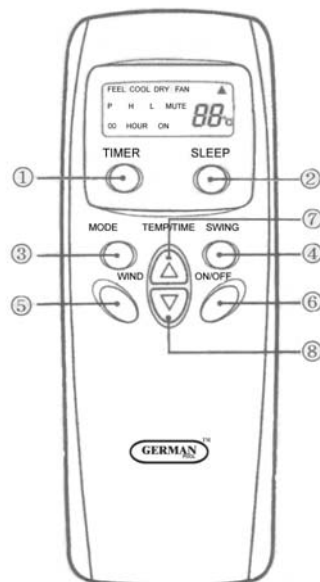
13. Self-checking function of controller

After the automatic button is pressed, the air conditioner will be powered on and enter into the process of self-checking:

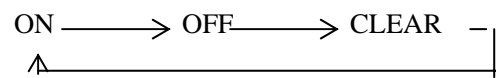
Buzzer sounds two times → operation indicator turns on → timing indicator turns on → compressor acts → four-way valve acts → outdoor fan acts → electric heating acts → indoor fan acts → buzzer sounds one time which means that air conditioner goes into the state of order-waiting and the self-checking comes to an end.

14. Remote control

Name and functions of the button on the remote control

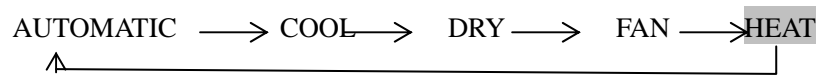


(1) Timing ON/OFF button: set the timing mode. After each pressing, the mode will be changed. It shows in the following display.



(2) Sleeping button: which enables you to start the automatic operation in sleeping mode and stops by pressing on it again.

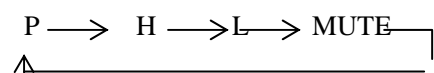
(3) Selection button for operation mode: which enables you to select different operation modes, after each pressing, the operation mode will be changed. It shows in the following display.



Remarks: Only cool type remote control has no heat mode

(4) Wind direction adjusting button: press the button, the horizontal airflow direction plate can adjust automatically. When you have the desired wind direction, please press it again, the airflow direction plate will maintain the same position.

(5) Fan speed selection button: you can select fan speed from “Power”, “High”, “Low”, and “Mute”.



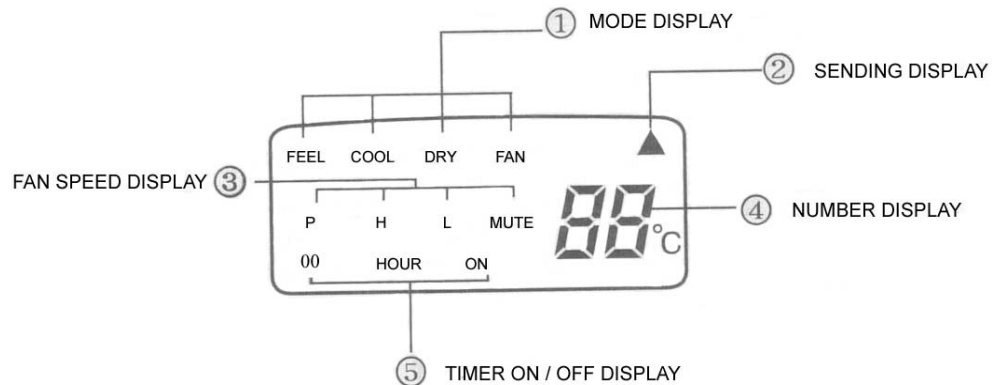
(6) ON/OFF button: you can start the air-conditioner by pressing this button and stop its operation by pressing it again.

(7) Setting button▲: Press the button, the setting temperature or timer

will increase.

(8) Setting button ▼: Press the button, the setting temperature or timer will decrease.

Display



- (1) Mode display: press the MODE button, it shows the current operation mode. You can select “Automatic”, “Cool”, “Dry”, and “Fan” “heat” operation mode. (cold wind type has no heating mode)
- (2) Sending display: when the remote control sends correct and effective signal each time, the sign displays intermittently each time.
- (3) Fan speed display: press the “WIND” button, the fan speed will display. You can select fan speed from “Power”, “High”, “Low”, and “Mute”.
- (4) Number display: which displays the setting temperature, in the circulation operation mode, the temperature number does not display.

(5)Timer ON/OFF display: which displays the timer states, “the timer ON” and “the timer OFF” do not set at the same time.

Remark: For illustration, all display items are listed here. When the mode operates, the relevant items display on the remote control.

Application

Fix batteries

- (1) Slide open the cover according the direction indicated by arrowhead.
- (2). Put into two AAA new batteries, position the batteries to right electric poles (+&-).
- (3)Put back the cover.

Make sure to connect the wire to independent power source socket before you use the remote control.

Automatic operation mode

- (1)Press the MODE button, select the automatic operation mode.
- (2)Press the TEMP/TIME button, set the temperature, temperature can be set at 1 °C difference range from 16-32 °C.
- (3)Press the WIND button, you can select fan speed from “Power”, “High”, “Low”, “Mute”.
- (4)Press the ON/OFF button, the operation indicator is on, the air-conditioner starts to operate in the Automatic mode. Press the button again, the air-conditioner stops.

Cooling/heating operation mode (cold wind type has no heating operating)

- (1) Press the MODE button, select the Cooling operation mode.
- (2) Press the TEMP/TIME button, set the temperature, temperature can be set at 1 °C difference range from 16-32 °C.
- (3) Press the WIND button, you can select fan speed from “Power”, “High”, “Low”, “Mute”.
- (4) Press the ON/OFF button, the operation indicator is on, the air-conditioner starts to operate in the Cooling mode.
Press the button again, the air-conditioner stops.

Drying operation mode

- (1) Press the MODE button, select the Drying operation mode.
- (2) Press TEMP/TIME button, set the temperature, temperature can be set at 1 °C difference range from 16-32 °C.
- (3) Press the ON/OFF button, the operation indicator is on, the air-conditioner starts to operate in the Drying mode.
Press the button again, the air-conditioner stops.

Remark: In the drying operation mode, the fan speed is automatically set to “Mute”.

Circulation operation mode

- (1) Press the MODE button, select the Circulation operation mode.
- (2) Press the WIND button, you can select fan speed from “High”, “Low”, “Mute”. In the circulation operation mode, you cannot select the speed of “Power”.
- (3) Press the ON/OFF button, the operation indicator is on, the air-conditioner starts to operate in the Circulation mode.
Press the button again, the air-conditioner stops.

Remark: In the circulation operation mode, you cannot set the temperature.

Timer setting

□ Set the “Timer ON” (it operates only when the air-conditioner shuts off.)

(1) Press the TIMER button, select the “Timer ON”, the remote control display “00 HOUR ON”; “ON” displays intermittently.

(2) Press the TEMP/TIME button, set the time. When “ON” stops intermittently, the “Timer ON” can be set.

□ Set the “Timer OFF” (it operates only when the air-conditioner is running.)

(1) Press the TIMER button, select the “Timer OFF”, the remote control display “00 HOUR OFF”; “OFF” displays intermittently at the same time.

(2) Press the TEMP/TIME button, set the time. When “OFF” stops intermittently, the “Timer OFF” can be set.

Remark: The remote control can only be set within 12 hour intervals.

Sleeping operation mode

(1) Press the SLEEP button, the sleeping indicator light of indoor unit flashes.

(2) After the setting of sleeping mode, the cooling operation enables the set temperature to increase 1 °C after 1 hour and another 1 °C automatically after another hour.

(3) After the setting of sleeping mode, the cooling operation enables the set temperature to increase 2 after 1 hour and another 2 automatically after another hour.

(4) The air-conditioner runs in sleeping mode for 7 hours and stop automatically.

Remark: 1. in sleeping mode the fan speed changes automatically to “Mute”.

2. Press the MODE button, WIND button or ON/OFF button, the

remote control clears sleeping mode away.

Attention:

- Aimed the remote control at the receiver on the air-conditioner.
- The remote control should be within 8 meters away from the receiver.
- No obstacles between the remote control and receiver.
- Don't drop or throw the remote control.
- Don't put the remote control under the strong sunrays or heating facilities and other heating sources.
- Use two AAA batteries, don't use rechargeable batteries.
- Take the batteries out of remote control before stop using for long.
- When the noise of transmitting signal can't be heard from indoor unit or the transmission symbol on the display screen doesn't flare, batteries need be replaced.
- If reset phenomenon occurs on pressing the button of the remote control, power of the batteries is deficient and need to be replaced.

Type		ASW-H07B4/HSAR	ASW-07B4/HSAR
		ASW-H07B4/HSR	ASW-H07B4/HSR
Rated cooling capacity (W/BTU)		2300/7800	2300/7800
Rated heating capacity (W/BTU)		2600/8870	
Rated cooling current (A)		3.9	3.8
Rated heating current (A)		4.1	
Rated cooling power (W)		860	830
Rated heating power(W)		870	
Air circulate (m ³ /h)		380	380
Power supply (V, Hz)		220~240, 50	220~240, 50
Refrigerant		R407C	R407C
Dehumidifying capacity(Kg/h)		0.9	0.9
EER		2.7	2.8
Noise dB(A)	Indoor unit	37	37
	Outdoor unit	50	50
Dimensions (mm)	Indoor unit	165×802×262	165×802×262
	Outdoor unit	260×760×540	260×760×540
Packing Dimension(mm)	Indoor unit	240×855×330	240×855×330
	Outdoor unit	368×882×585	368×882×585
Weight (kg)	Indoor(net/gross)	9.5/11	9.5/11
	Outdoor(net/gross)	33/35	32/34
Applicable room area□m ² □		9□14	9□14

Chapter 5 Main Technical Data





Type		ASW-H09A4/HSAR	ASW-09A4/HSAR
		ASW-H09A4/HSR	ASW-09A4/HSR
Rated cooling capacity (W/BTU)		2500/9000	2500/9000
Rated heating capacity (W/BTU)		2800/9550	
Rated cooling current (A)		4.1	4.0
Rated heating current (A)		4.1	
Rated cooling power (W)		900	880
Rated heating power(W)		900	
Air circulate (m ³ /h)		420	420
Power supply (V, Hz)		220~240, 50	220~240, 50
Refrigerant		R407C	R407C
Dehumidifying capacity(Kg/h)		0.95	0.95
EER		2.8	2.85
Noise dB(A)	Indoor unit	38	38
	Outdoor unit	50	50
Dimensions (mm)	Indoor unit	165×802×262	165×802×262
	Outdoor unit	260×760×540	260×760×540
Packing Dimension(mm)	Indoor unit	240×855×330	240×855×330
	Outdoor unit	368×882×585	368×882×585
Weight (kg)	Indoor(net/gross)	9.5/11	9.5/11
	Outdoor(net/gross)	33/35	32/34
Applicable room area□m ² □		10□15	10□15

NOTE: 1.Specifications are standard values calculated based on rated operation conditions, they will vary in different working condition

2. Our company has quick technical improvement. There will be no prior notice for any change of technical data. Please read the nameplate on the air conditioner

Chapter 6 Dismantling Procedure

Indoor Unit

Operating step	Photo
<p>1. To remove the panel and connecting wire cover.</p> <ul style="list-style-type: none">· Take off the screws of the connecting wire cover and remove the cover.· Then remove the panel.	 <p>A photograph of a white indoor air conditioning unit. The top panel has been removed, and the connecting wire cover is also detached and lying on the surface below the unit. The unit is shown from a front-three-quarter view. A yellow date stamp '2003/09/24' is visible in the bottom right corner of the photo.</p>
<p>2. To remove the air filter.</p>	 <p>A photograph of the same indoor air conditioning unit. The top panel is now open, and the white air filter has been removed, leaving a gap in the top of the unit. The connecting wire cover remains detached. A yellow date stamp '2003/09/24' is visible in the bottom right corner of the photo.</p>
<p>3. To remove the inter frame assembly</p> <ul style="list-style-type: none">· Take off three screws of inter frame assembly· Then take off the inter frame assembly	 <p>A photograph of the indoor unit with the inter frame assembly removed. The top panel is open, and the internal components, including the inter frame assembly, are visible. The connecting wire cover is still detached. A yellow date stamp '2003/09/24' is visible in the bottom right corner of the photo.</p>
<p>4. To remove the electric control box</p> <ul style="list-style-type: none">· Take off one screw· Loose one obverse clip· Remove the electric control box	 <p>A photograph of the indoor unit with the electric control box removed. The top panel is open, and the internal components, including the electric control box, are visible. The connecting wire cover is still detached. A yellow date stamp '2003/09/24' is visible in the bottom right corner of the photo.</p>

5. To remove the water-collecting plate assembly

- Loose three obverse clips
- Take off the electric control box

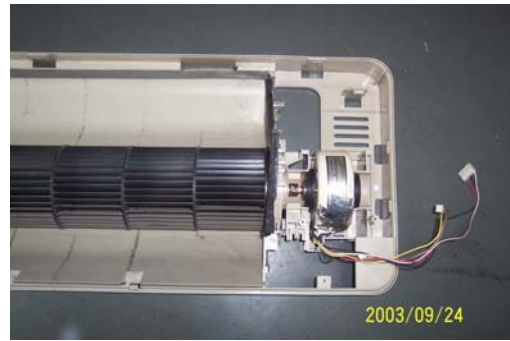


6. To remove the evaporator assembly

- Take off one screws of right locating cover and two screws of left locating cover
- Remove the pipe strap
- Remove the evaporator assembly






7. To remove the through-flow fan
- Take off the screws of though-flow fan
 - Remove the though-flow fan



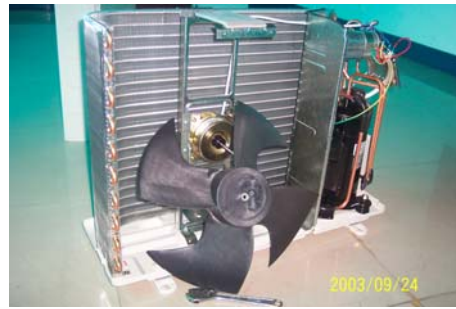
8. To remove the motor
- Take off three screws of right locating cover
 - Remove the motor



Outdoor Unit

Operating step	Photo
<p>1. To remove the top cover assembly</p> <ul style="list-style-type: none">• Take off six screws of top cover	 <p>The top photo shows the exterior of the outdoor unit with the 'AUX' logo and Chinese characters '奥克斯'. The bottom photo shows the interior of the unit with the top cover removed, revealing the condenser coils and fan.</p>
<p>2. To remove the panel assembly</p> <ul style="list-style-type: none">• Loose screws of panel assembly• Take off panel	 <p>The photo shows the panel assembly being removed from the outdoor unit, revealing the fan and internal components.</p>
<p>3. To remove the right plate assembly</p> <ul style="list-style-type: none">• Loose nine screws of left plate assembly• Take off right plate	 <p>The photo shows the right plate assembly being removed from the outdoor unit, revealing the internal components.</p>

4.To remove the axial-flow fan and fan motor



5.To remove the electric assembly



Chapter 7 Brief introduction of installation

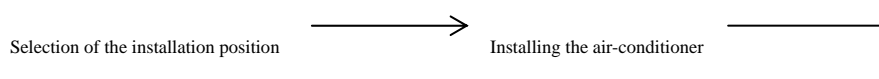
The installation of air-conditioner should meet with the “Installation Instruction”.
The machine must be installed correctly by professional technicians according to the “Installation Instruction”.

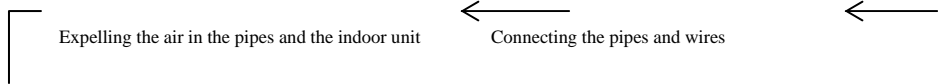
Guide to customer

- The customer should provide a suitable power supply source, its voltage should be in the range of 90-110% of its rated voltage.
- The power supply circuit should have MCB leakage protection. The capacity should be more than 1.5 times of the maximum current.
- Must use independent circuit and suitable grounding socket matching with the plug of air-conditioner.
- The wiring must be installed by qualified electrician according to the electrical safety requirements.
- The air-conditioner must be well grounded, the switch of the main power of air-conditioner must be reliably grounded.
- The power supply wire, must be changed by qualified electrician.

Installation Instruction

Installation order:



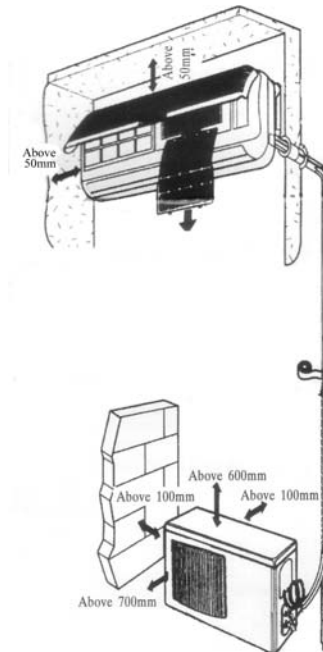


→ Testing

Selection of the installation position

Indoor Unit

- There is no heating and steaming nearby.
- No obstacles for installation from nearby.
- Keep good air circulation.
- Convenient to adopt measures to noises.
- Don't install them near the doorway.
- Make sure to have the distance specified in the picture between the wall, furniture and other obstacles.
- 2 meters high above the floor.



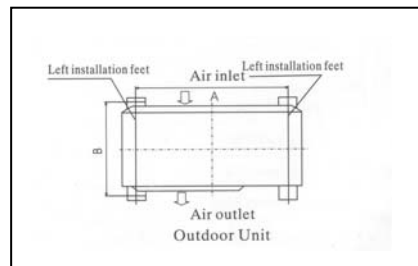
source
position
reduce
ceiling,

Outdoor Unit

- In case that you put up a canopy to protect it from rains and sunrays, pay attention not to cause any obstacles for the heating dispersion for the condenser.
- Don't keep animals or plants near the installation location for the hot air from the outdoor unit will affect them.
- Make sure to have the distance specified in the picture between ceiling, wall, furniture and other obstacles.
- Stay away from heating source and inflammable air.
- The installation base and supporting frame should be strong and secure. The machine should be at a level surface.

Installation of the Outdoor Unit

- The outdoor unit must be firmly fixed avoid falling in strong wind.
- Install on the cement base as in the drawing.
- If it is installed at seaside or at a place above the ground and with strong wind, the AC should be installed against the wall to ensure the normal operation of the fan and the blocking plate should be used.

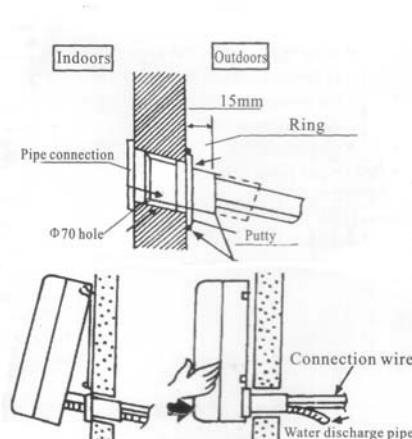


to
high

- If it is an overhanging installation, the structure of the mounting wall should be made of solid, cement or materials with equivalent strength, and of sufficient support capacity. Otherwise, measures such as reinforcement, support or vibration damping should be adopted.

Installation of the Indoor Unit

- First make changes to wall and make sure that is hard and secure. Using four “+” type screws to fasten the installation board onto the wall. Keep it level in horizontal direction and perpendicular in vertical direction. Otherwise it might cause water drips when air-conditioner is running in cooling operation.
- Drill 70mm diameter pipe hole at the left lower or right lower side of the installation board. The hole shall slant outward slightly.

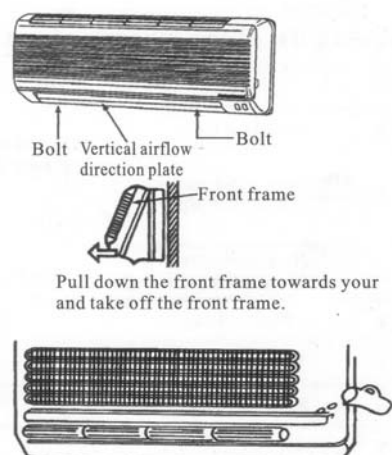


- Hang the indoor unit to the board and make sure the machine is in the middle of the board.
- Push the machine towards the left lower and right lower side of the installation board until the hangers enter tightly into the grooves (it produces “click” sound)

Check the water discharge

1. Take off the frame from the unit cover.

Take off the front frame for maintenance according to the



following steps:

- As shown in the picture on the right, take off two covers from the front frame and then unfasten two fixture screws.
- Pull the front frame towards yourself and take it off.

To put the front frame back, reverse the steps.

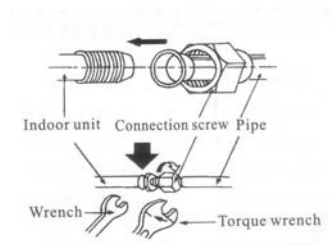
You should check whether the front frame is firmly fixed into the fixture groove on the top.

2. Check the water discharge

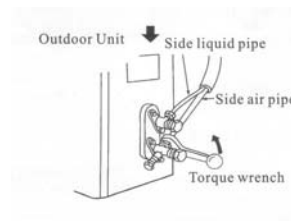
- Pour a cup of water into groove.
- Check whether the water flow through the water discharge hole.

Pipe Connection

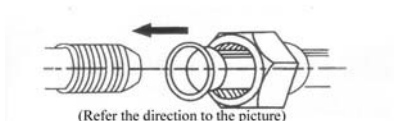
- Connect the pipe to the unit: point to the pipe and fasten the connection screw at hand and then by wrench until it is fastened. The fastening direction is the picture.
- Pointing towards the center of pipe, fasten with strength.
- Wrench the screw in the end until you hear



center of
first by
tightly
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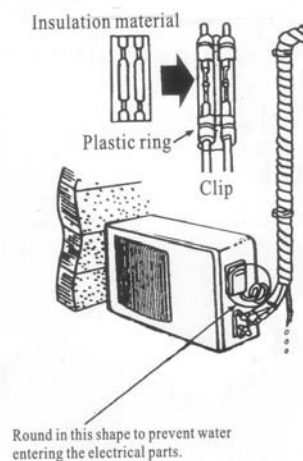


the screw
the



The fixing of pipe

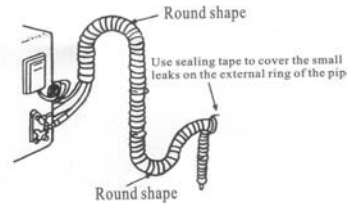
- Wrap up all pipe, water discharge and connection wire from top to below.
- Cover the connection parts with insulation material and fix them with plastic rings.
- Wrap up the pipes with tape alongside and fix them to the wall with clips.



two
the wall
These

steps are usually adopted when outdoor unit is installed below the indoor unit.

- In case that you want to have additional water discharge pipe, the end of pipe should be within certain distance from the floor (to prevent water from draining back into the pipe). Fix it onto the wall so it won't be swayed by wind.
- Wrap the pipes and connection wire below to top.
- Wrap up the pipes that are rounded way shown in the picture so it can water from entering the room.
- Use clips or other fixture to fasten to the walls.

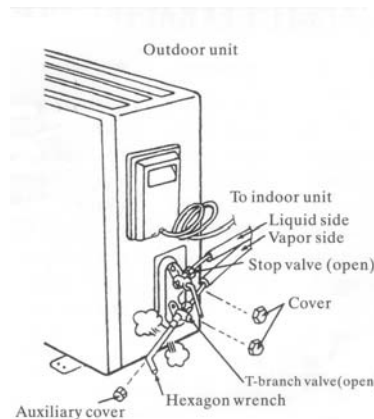


well from
up in the
prevent
the pipes

Expelling the air in the pipes and the indoor unit

Expelling the air: humid air in the refrigerating system might cause trouble of compressor.


- Take off the cover from the stop and T-branch valve.
- Take off the auxiliary cover from T-branch valve.
- Turn the stop valve rod anti-clock an angle of 90 degree, keep it open seconds and close the valve.
- Check whether there is air leakage connection parts of pipes.
- Push the top rod of T-branch valve hexagon wrench to expel air.
- Repeat the third and fifth steps.
- Open the stop and T-branch valve with a hexagon wrench to make the unit operate.
- No leakage is allowed, please check all the piping connection parts. You must test the leakage, generally, it can be tested by soap water.



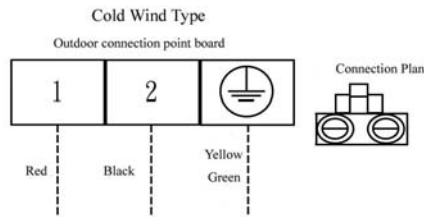
valve
the
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Electrical connection

- Unscrew the screw, take off the control panel cover from the unit.
- Cooling type: connect the wire to the related connection point on the panel and connect the signal connection plug.

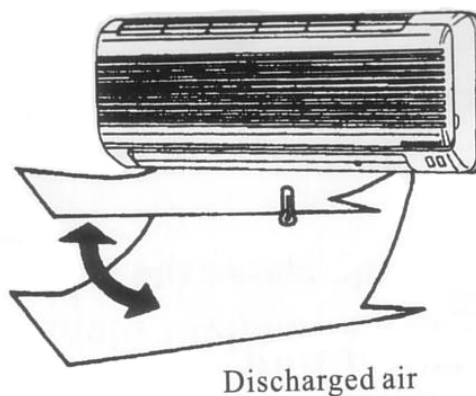
Remarks: yellow and green cord should be connected to connection point with  mark.

- Fasten the fixture of wire to control panel.
- Screw up the control panel cover to its original place.



Test running

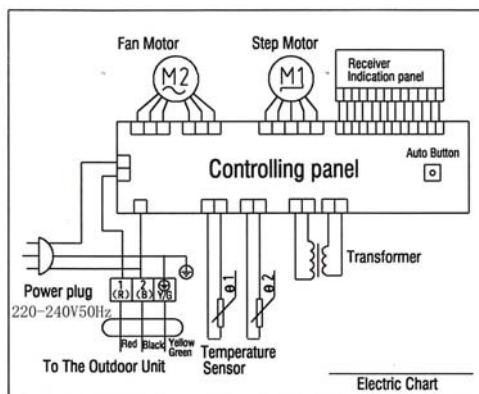
- Make sure that the pipes and wires are connected.
 - Make sure that both the liquid valve and gas valve on the side are completely open.
1. The connection of power source
 - Connect the wire to independent power source socket.
 - Preparation of remote control.
 - Run the air-conditioner in cooling operation mode for 30 minutes or longer.
 2. Performance evaluation
 - Test the out and in air temperature.
 - Make sure that the temperature difference between the out and in air is greater than 8°C.



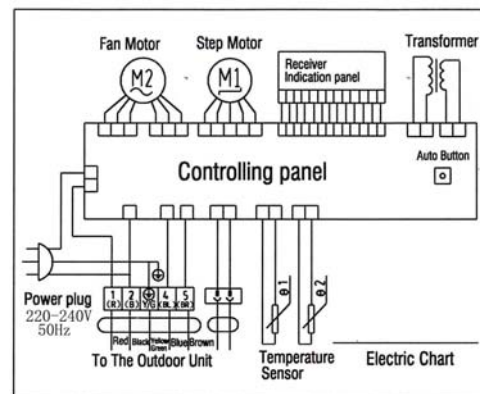
Items of attention

- Fix the machine firmly, otherwise it will produce noise and vibration.
- Install the outdoor unit where it will not disturb your neighbor.

Electrical connection diagram:

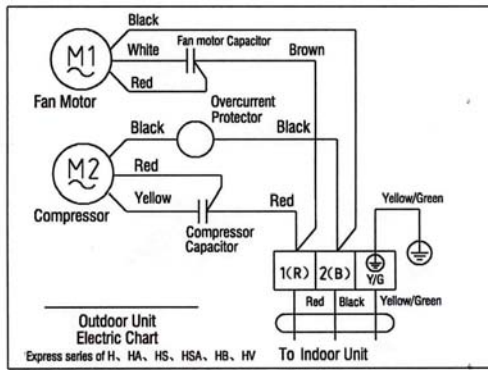


COOL SERIES

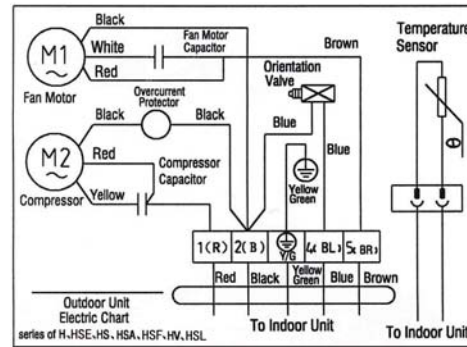


HEAT PUMP

Indoor unit electric connection diagram



COOL SERIES



HEAT PUMP

Outdoor unit electric connection diagram

Chapter 8 Fault Analysis of the Product Available and Typical Examples

1 Procedure of deciding the faults

Before maintaining the air conditioner, firstly you should know the phenomena of the faults, decide the location of the faults, analyze the reason the faults occur, and then search for ways to solve the faults. The detailed procedures are: Look, Listen, Touch, Measure, Analyze

Look: Observe air conditioner's running. I.e., vibration; condensation on evaporator; leakage; electrical and mechanical connection, etc.

Listen: Listen to kinds of sounds of the running air conditioner. Identify the abnormal noise from the sounds.

Touch: Touch the key position and position faulty. Touch the temp of air circulation to decide the heating or cooling effect; as far to abnormal sound, besides adopt "listen", you should touch the frame, the pipe of the air conditioner to feel the vibration. Touch the easily heated parts, i.e. compressor, motor, touch them to feel the temp. (Warning: High temp).

Measure: Measure the parameters of the air conditioner and relevant parts by some instruments. Usually used instruments: amperemeter, voltmeter, multimeter, thermometer, etc, i.e., Use multimeter to test whether the capacitor is open, the insulation of the wire and the parameters of other electrical parts; use the thermometer to measure temp of airflow.

Analyze: Analyze the above results, decide the reason and location

of faults, and seek the solutions.

2 Types of Normal Faults

The type of faults is various. The normal faults can come down to six types: leaks, block, open circuit, burnt, lock, scrape.

Leak Mainly is leakage of R407C from cooling pipe system and parts; leakage of condensation water from indoor units; electrical leakage from electrical system and wires.

Block Mainly is block of the pipe system, block of capillary, block of strainer or valve.

Open Circuit Mainly is open circuit of electrical circuit, include: fuse blowing out, connectors broke.

Burnt Mainly is burnout of fan motor, of compressor, of capacitor, of transformer.

Lock Mainly is lock of compressor, four-way valve.

Scrape Mainly is scrape of indoor/outdoor fan and nearby parts, and sound abnormally.

3 Examples

3.1 Leakage and seepage of indoor unit

Reason	Check to be made	Proposed remedy
Improper installation. Indoor drain position is lower than outdoor or slanting installation of indoor unit	Observe if the condensation water drain out, if the indoor unit is declining	Level the indoor unit and adjust the height
Water collecting plate is blocked	Check if the plate is blocked	Remove the matters block the plate
Water collecting plate or drain pipe is cracked	Check the location, ensure if it is cracked	Replace the plate or pipe
Loosen wrap belt, heat-preservation layer is bad or layer behind indoor units is bad	Connecting pipe bleed the water, condensation water exists behind the indoor unit, the wall is wet and turn colors	Rewrap the connecting pipe, add new heat-preservation layer
High ambient relative humidity, low temp/speed of air flow	Water is blow out from air outlet, or water drips from the outlet. Lower speed of air flow	Suggest set the units to dehumidifying mode at high speed of air flow, to lower relative humidity; if the high speed is still felt lower, the fan motor must be checked

3.2 Poor cooling or heating effect

Reason	Check to be made	Proposed remedy
The cooling/heating load of the room is heavy or the room is not closed perfectly	Calculate the area of the room, check the close of the room	Enlarge the capacity of the units, improve the leakproofness of the room
Insufficient refrigerant R407C	Measure the operating current	Add R407C welding the leaked point
Too much R407C	Air intake temp is too low, condensation water on air intake pipe is too much, temp of discharge is too high	Discharge a little R407C
Effect of heat exchange is too poor	Dust on outdoor condenser and indoor filter is too much	Cleanup filter and condenser
Some of the windings of motor fan is short-circuit, so cause speed decline	Speed of indoor/outdoor fan is too low, air circulation is small	Repair or replace motor
Running condition is too bad	Check if the installation is proper; outdoor temp is too high when heating	Improve the condition, use auxiliary heating
Convexity exists in compressor or valve or lock of compressor	No high-low pressure difference, no clear temp difference in air intake inlet or discharge outlet of compressor	Replace compressor or valve
Openness of check valve is too small or the system partly or completely blocked	Check the openness; partly frost on outdoor pipe system	Open the valve; use high pressure N ₂ to clean out the block

3.3 Big noise or abnormal sound

Reason	Check to be made	Proposed remedy
Foreign matters in wind guide or impeller fan	Check if they are	Clear away
Fan is distorted or in bad balance	Check them	Replace indoor/outdoor fan
Improper location of fan, so fan touches the housing	Open the unit or move the fan manually, find the location	Adjust the position
Bearing of the fan is sluggish or destroyed	Check the bearing	Replace the bearing

Connecting pipe vibrates due to improper installation, or touch the lower frame	Check the connecting pipe	Tidy up the pipes, eliminate the noise source
Outdoor pipes touches	Check the vibration of the pipes, check if them touch	Tidy up the pipes
Abrasion of the parts of compressor	Check if the sound of compressor is normal	Replace the compressor

3.4 Frequently switch on/off of the compressor

Reason	Check to be made	Proposed remedy
Running voltage is too low	Measure the voltage	Add measures of voltage stabilization
Discharge temp is too high caused by insufficient of R407C, compressor is protected by overheat	Check condensation of air intake pipe or measure if operating current is lower than rated current	Check leakage point, welding or add R407C
Temp sensor is too close to evaporator or moved	Check the position of sensor	Adjust the position or replace the sensor
Air inlet/outlet of heat exchange is blocked or low speed of fan motor; indoor air filter is too dirty or blocked	Check indoor/outdoor heat exchange, speed of motor, air inlet/outlet	Cleanup the filter, remove the obstacle
Too much R407C	Too much condensation water on air intake pipe, high operating current	Discharge a little R407C
Bad insulation of compressor, high operating current, overcurrent proof	Check start or operating current	Replace compressor
Improper temp set	Check actual ambient temp	Reset

3.5 Promptly protected by halt after compressor starts

Reason	Check to be made	Proposed Remedy
Insufficient R407C	Little or no condensation water on air intake pipe, operating current is lower than rated current	Add R407C
Mixed with air in the system, vacuum is not good	Power varies when running	Vacuumize the system, recharge R407C

Blocked caused by water or impurity	Operating current is lower than rated current, part of the unit frosts heavily	use high pressure N ₂ to clean out the block, revacuumize and recharge R407C
Damaged compressor, high start current	Check the windings and insulation of compressor and if it is locked	Replace the compressor

3.6 The units blow out cool air when in heating mode

Reason	Check to be made	Proposed Remedy
Four-way valve doesn't work	Listen to the units if there is sounds of valve's working when heating or cooling	Replace the valve
Faults of control interrupter or other relevant circuits of the valve	Check the circuit	Repair or replace the control board
Insufficient R407C causes the insufficient heating capacity	Little condensation water on outdoor air intake pipe, low operating current	Add R407C
Connexity of compressor	Same temp of air intake inlet and discharge outlet of the compressor, no condensation in air intake inlet	Replace the compressor

3.7 The units doesn't work

Reason	Check to be made	Proposed Remedy
Bad connection of the power plugs, or no power plug	Check the socket	Repair or replace
Outdoor fuse or indoor fuse is burnt	Check if the fuse is good	Replace the fuse
Low voltage	Measure the voltage	Heighten the voltage of the power supply system
Wrong indoor temp set	Measure actual indoor temp, compare to the set temp(in cooling set temp should be lower than the actual, in heating, is higher)	Reset the temp

Wrong running mode of indoor units set	Check if running mode of two indoor units is the same(it is not available if one is heating and another is cooling	Reset
--	---	-------

3.8 Cannot receive the remote control signal

Reason	Check to be made	Proposed Remedy
Damaged remote control or low battery	Check if the indication is normal	Replace the remote control or battery
Short-circuit of connections of main control board to switch board	Check the board	Replace the components
Running mode of two indoor units is not the same	Check if one is heating and another is cooling	Reset
Indoor units are in test mode	Open the air intake grill to see the running mode	Adjust test mode to remote control mode

Remarks The above mentioned “faults” are the faults possibly occur, we will continue to collect the faults and analysis.

CONTENTS

- Chapter 1 **photos and Features of products**
- Chapter 2 **Operating Principle**
- Chapter 3 **operation details**
- Chapter 4 **Exploded Views of the Production**
- Chapter 5 **Main Technical Data**
- Chapter 6 **Dismantling Procedure**
- Chapter 7 **Brief introduction of installation**
- Chapter 8 **Fault Analysis of the Product Available**

Chapter 1 photos and Features of products

Features of outlook and construction



ASW-H12A4/HSAR

ASW-12A4/HSAR

Deep x width xhigh 176x890x296



ASW-H12A4/HSR

ASW-12A4/HSR

Deep x width xhigh 176x890x296



Deep x width xhigh 260x760x540

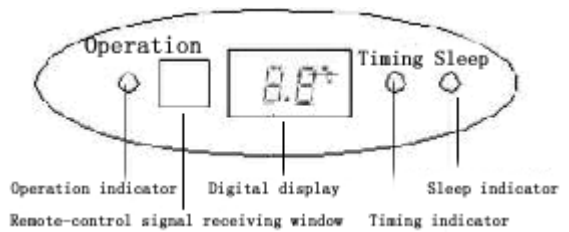
All types



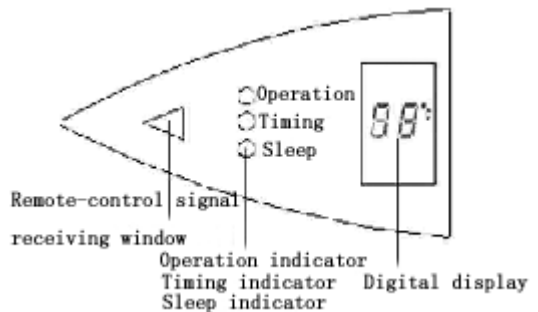
All types

Operation interface

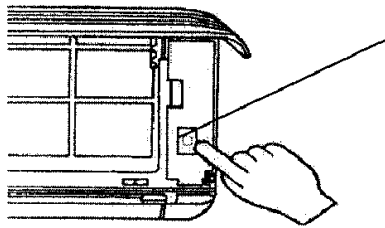
■ Inner operation interface of Type HSAR



■ Inner operation interface of Type HSR



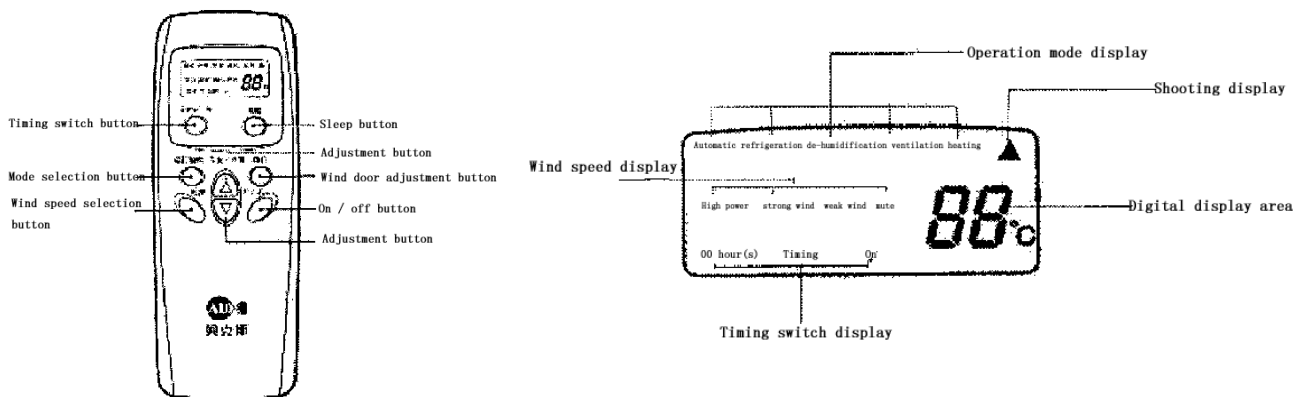
Emergency operation button of indoor types:



Compulsory button

- 1) When the air-conditioner works with the absence of remote control, it will stop working by pressing the compulsory button and it will resume working by pressing the compulsory button once again.
- 2) When remote control is useless, you can adopt the compulsory operation by which the air conditioner will go into automatic operation mode.

The operation interface of remote control:



□ □ Features of products

1. Fashionable appearance
2. Compact Design
- 3.7 Hours of Sleep Mode Operation
4. Economy Mode to Reduce Electrical Power Consumption

5. Clean breath efficient biological antibacterial filter gauze made from green plant elite refined by using international leading technology, with the function of filtering and suppressing bacteria, and able to absorb and kill various pathogens and harmful gases efficiently for a long period, prevent secondary pollution caused due to microorganism spreading, and ensure the health of your family

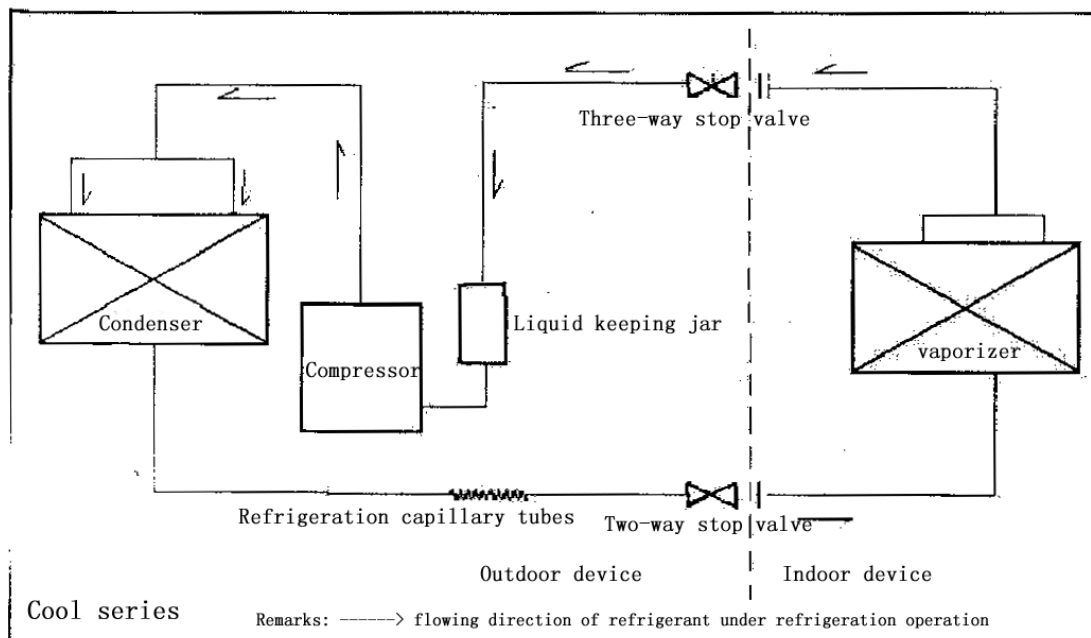
6. R407c cold medium is applied, environment-friendly, and avoid damages to ozonosphere

7. International famous-brand Toshiba Hitachi and Matsushita compressors are applied

Chapter 2 Operating Principle

. Cooling

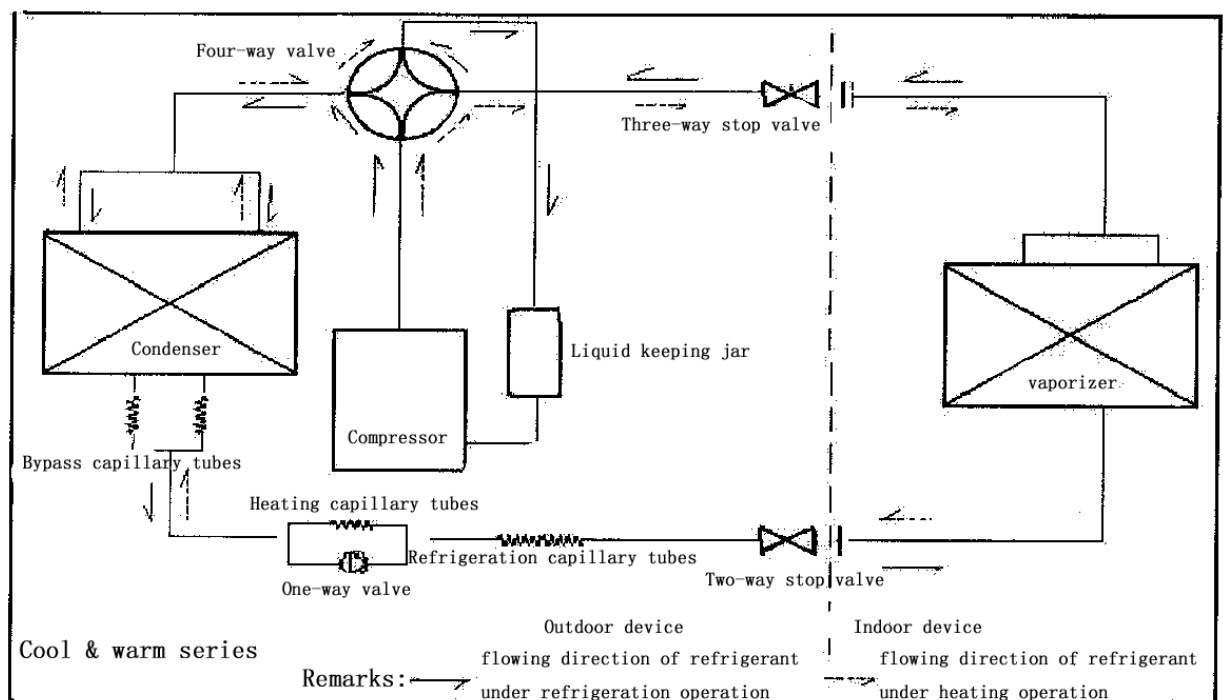
After the power supply is switched on, the machine is set to COOL mode. With the compressor being operated, the low-temperature and low-pressure refrigerant vapor is sucked into the compressor where it is turned into high-temperature and high-pressure gas. Then it is cooled down in the outdoor heat exchanger by the air and becomes liquid. After being throttled by the capillary, the refrigerant liquid comes into the indoor unit and then it evaporates in the indoor heat, exchanger,



absorbing heat and reducing the room temperature. The evaporated refrigerant vapor returns to the outdoor unit and is again sucked into the compressor, completing the cycle. With the refrigerant cycling being kept on, the objective of lowering the room temperature is fulfilled.

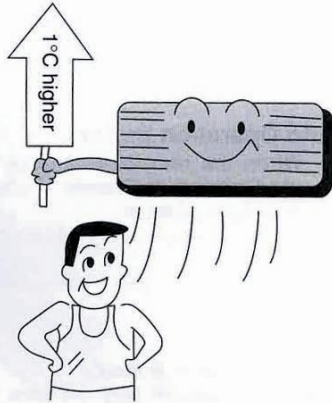
□. Heating

After the power supply is switched on, the machine is set to HEAT mode and the coil of the electromagnetic four-way valve is energized. After the compressor starts to operate, the high-temperature and high-pressure refrigerant gas first comes into the heat exchanger of the indoor unit, where it is cooled, releases heat and increases the room temperature. The cooled high-pressure refrigerant is then throttled in the outdoor unit and returns to the compressor after evaporation. With such cycles being maintained, the objective of increasing the room temperature is fulfilled.



Operation Hints

Adjust room temperature properly. Set the temperature 1°C higher than actually desired. Approximately 10% of electricity costs can be saved.



Clean the air filter regularly. Blockage in the air filter reduces the airflow and lowers the cooling. Clean at least once every 2 weeks. Otherwise, 6% of electricity cost will be wasted.



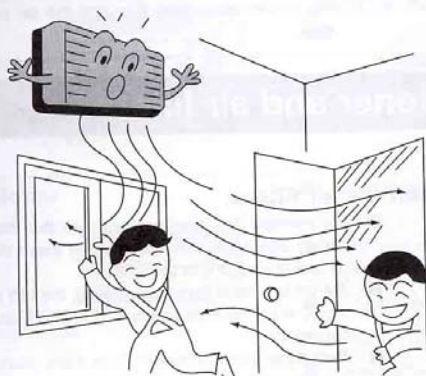
Prevent waste with the Timer. Use Timer when sleeping or going out to save electricity cost.



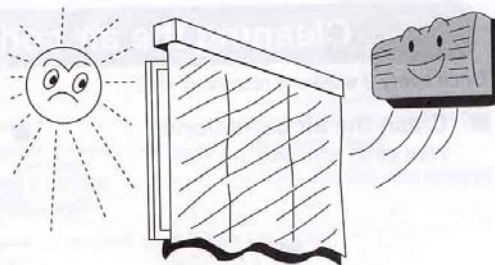
Do not block the air outlet vents at outdoor unit. Otherwise, it will lower the cooling performance.



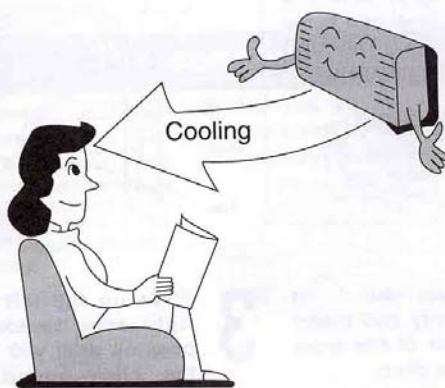
■ Make sure that the doors and windows are shut. Otherwise, cooling performance will be reduced and electricity cost is wasted.



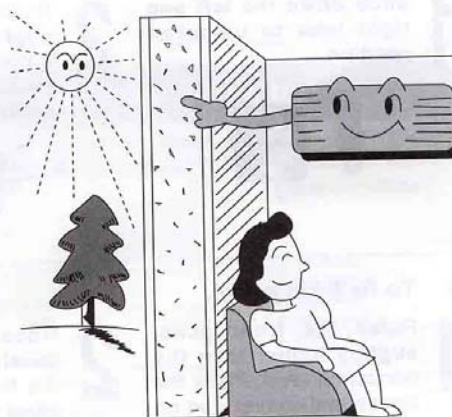
■ Keep blinds or curtains closed. Do not let sunshine enter the room directly. 5% of electricity cost can be saved.



■ Proper airflow direction adjustment. Set the airflow direction louvers horizontal for Cooling Operation. Operation result will be better.



■ Use insulating material for better performance. Use insulating material during construction or renovations. It will save electricity cost.



Chapter 3 operation details

1. Overall

1.1 Protection of compressor

Whatever operation modes the air-conditioner is under, there will always be 3 minutes' time-delay protection unless it is on for the first time. When the compressor is switched on, it can not be shut down within 3 minutes (except under the modes of heating or defrosting) unless it is powered off or its operation mode is changed.

1.2 The operation indicator will turn light when the air conditioner is powered on.

1.3 The buzzer will sound immediately after the controlling device receives a correct and effective signal sent by the remote control.

1.4 Timing function can be applicable to all operation modes while sleep function can only be applicable to the modes of refrigeration and heating.

2. Automatic operation mode

2.1 When the air conditioner works, it can detect the indoor temperature automatically whereby its operation mode can be selected: refrigeration, heating or dehumidification.

2.2 When the indoor temperature reaches more than 27 °C, the air conditioner will operate under the mode of refrigeration.

2.3 When the indoor temperature reaches between 20 °C and 27 °C the air

conditioner will work under the mode of dehumidification (always mute).

2.4 When the indoor temperature reaches less than 20 °C, the air conditioner will work under the mode of heating.

2.5 Under this mode, the air conditioner will operate in the respect of blowing rate as set and its pendulum leaves will work according to the requirements of automatic ventilation door.

2.6 Once the operation mode is selected, it will not be able to be changed. When the air conditioner is shut down and then restarted, the operation mode will be selected once again based on the variation of indoor temperature.

2.7 After the operation indicator has been flickering for 20 seconds, it will turn light steadily (i.e. the determination of operation mode will start in 20 seconds.)

2.8 This mode has timing function, does not have sleep function.

2.9 Under this operation mode, the temperature can be set and adjusted by remote control.

3. Refrigeration mode

3.1 Under the refrigeration mode, the range of temperature set by remote control is between 16 °C and 32 °C.

3.2 Shut-down of four-way valve;

3.3 The condition on which the compressor starts is that the indoor

temperature reaches more than the temperature set plus 1 while the condition on which the compressor shuts down is that the indoor temperature reaches less than the temperature set minus 1 .And when the indoor temperature is equal to that set, the original operation mode will be kept.

3.4 Under the mode of refrigeration, the function of preventing indoor coiled pipe from being frozen will be effective.

3.5 The indoor wind speed will be as set. And the pendulum leaves will work according to the instructions sent by remote control.

4. Dehumidification operation

4.1 The temperature range set and controlled is between 16 and 32 .
The temperature will be set by remote control.

4.2 The four-way valve is shut down.

4.3 The wind speed gear-changes to “mute”. And the pendulum leaves works according to the instructions sent by remote control;

4.4 The function of preventing indoor coiled pipe from being frozen is effective.

4.5 When the indoor temperature reaches less than 16 , the function of dehumidification is out of use.

4.6 When the indoor temperature reaches more than 16 , the compressor will be switched on and work intermittently. The time when the compressor shuts down depends on T ring and T ring-T set.

When the compressor is shut down, the outdoor fan and indoor fan will stop working.

When $T_{ring} \geq 23$ °C

$T_{set} < T_{ring} - 1$, the compressor will be working for 8 minutes and then stopping for 3 minutes in cycles.

$T_{set} \geq T_{ring} - 1$, the compressor will be working for 3 minutes and then stopping for 6 minutes in cycles.

And when $T_{ring} < 23$ °C

$T_{set} \leq T_{ring} - 1$, the compressor will be working for 3 minutes and then stopping for 4 minutes in cycles.

$T_{set} > T_{ring} - 1$, the compressor will be working for 3 minutes and then stopping for 6 minutes in cycles.

5. Function of ventilation control

5.1 Under the mode of ventilation, the outdoor fan assembly will always be shut down.

5.2 The indoor fan will operate as set in the respect of air quantity without the gear- change of "high power".

5.3 The pendulum leaves will work according to the instructions sent by remote control.

6. Heating function

6.1 Under the mode of heating, the temperature range set is between 16 and 32 °C. And the temperature will be set by remote control.

6.2 When the air conditioner is powered on, the outdoor fan, four- way valve and compressor will start at the same time while when it is shut down, the outdoor fan and compressor will be shut down at the same time and so will the four- way valve after 2 minutes' delay.

6.3 Under the mode of heating, the compressor can not be shut down within 3 minutes after it is powered on unless the operation mode is changed or the air conditioner is turned off.

6.4 There is a 3 temperature compensating function. The temperature measured at the in-blow vent minus 3 automatically can be regarded as that compared with the temperature set (This function does not exist under other circumstances).

6.5 According to the temperature set, the condition upon which the compressor will be switched on is indoor temperature \leq temperature set-1 While the condition upon which it will be switched off is indoor temperature is indoor temperature \geq temperature + 1 . When the indoor temperature is equal to that set, the original operation mode will be kept.

6.6 Indoor fan control:

6.6.1 Heating operation and prevention of cold wind

When the compressor works:

1. During the rising process of the temperature of coiled pipe, the indoor fan will not start if the temperature of the coiled

pipes is less than 25 .

2. When the temperature of coiled pipe reaches less than 35 But more than 25 , The indoor fan will work under the mode of “ mute". If the temperature of coiled pipe ascends to 25 and then descends, it will stop working only when the temperature is lowered to 22 .
3. When the temperature of coiled pipe reaches more than 35 , the indoor fan will operate as set in the respect of wind speed. If the temperature of coiled pipe ascends to 35 And then descends, it will enter into the operation mode of “ mute" only when the temperature is lowered to 30 .

6.6.2 Afterheat-blowing function:

6.6.2.1 When the compressor stop working:

1. When the temperature of coiled pipe is more than 35 , the indoor fan will operate as set in respect of wind speed.
2. When the temperature of coiled pipe is more than 25 , but less than 35 , The indoor fan will operate under the mode of “ mute"
3. When the temperature of coiled pipe is less than 25 , the indoor fan will stop working.

6.6.2.2 The afterheat-blowing function when the air conditioner is just

shut down: If the temperature of indoor coiled pipe reaches more than 30 , The indoor fan will operate under the mode of “ mute"; If

it lowers to less than 30 °C, the indoor fan will be shut down; And the time when the afterheat blows will last less than 40 seconds after the indoor fan is turned off.

6.7 Defrosting operation:

6.7.1 The conditions upon which the outdoor sensor goes into operation are as below:

1. Under the circumstance of heating, if T external coiled pipe is at the temperature of less than -6 °C which lasts 2 minutes and the accumulated working time of compressor reaches more than 50 minutes (if there is any power cut-off or shut-down by remote control, the accumulated working time of compressor shall be re-calculated), the defrosting interval will be more than 50 minutes and the compressor will be working 5 minutes continually.
2. If there is any damage to the external coiled pipe, the accumulated working time of compressor will reach 50 minutes (if there is any power cut-off, shut-down by remote control or defrosting, the accumulated working time of compressor shall be re-calculated) and the defrosting operation will last 10 minutes.

6.7.2 Once one of the following conditions is satisfied, the defrosting will end:

1. The temperature of T external coiled pipe is more than 12 °C.
2. Defrosting duration is more than 12 minutes.

6.7.3 The requirements of defrosting operation:

1. Sleep indicator flickers at the speed of 1 time per second
2. When defrosting operation starts, the compressor and indoor fan will stop working while outdoor fan and four-way valve will continue to work.
3. The four-way valve and outdoor fan will stop operating in 30 seconds.
4. 15 seconds after that, the compressor starts and goes into defrosting operation.
5. After the defrosting ends, the compressor stops working. And the four-way valve and outdoor fan begins to work in 20 seconds.
6. 20 seconds after that, the compressor starts and goes into heating operation. And the indoor fan enters into the prevention mode of cold wind.

6.8 Auxiliary electric heating function

6.8.1 Only if the following conditions are satisfied under the heating operation, can the auxiliary electric heating go into operation automatically.

- a. The compressor works for 4 minutes by heating pump
- b. Indoor temperature is less than 22 ;
- c. The temperature set-indoor temperature is more than 3 ;

- d. Indoor fan goes into operation;
- e. Indoor coiled pipe temperature is less than 48

6.8.2 Once one of the following conditions is satisfied, auxiliary electric heating operation will end:

- a. Indoor temperature is more than 22 .
- b. The temperature set –indoor temperature is less than 2 .
- c. When Indoor coiled pipe temperature is more than 52 , the electric heating operation will end.
- d. Indoor temperature sensor becomes abnormal.

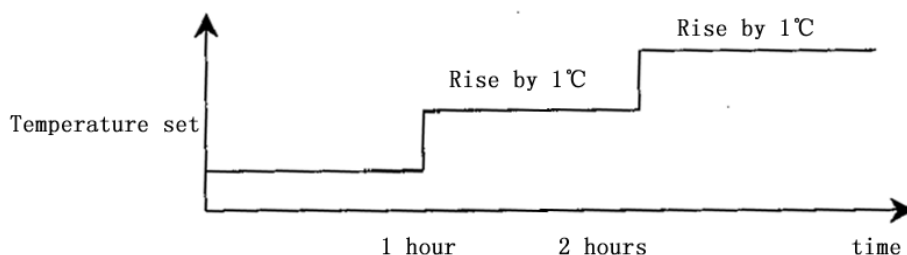
6.8.3 If compressor or indoor fan stops working, the electric heating will stop operating as well.

6.8.4 During the operation of compressor, if the auxiliary electric heating stops working, it can be restarted only in 1 minute.

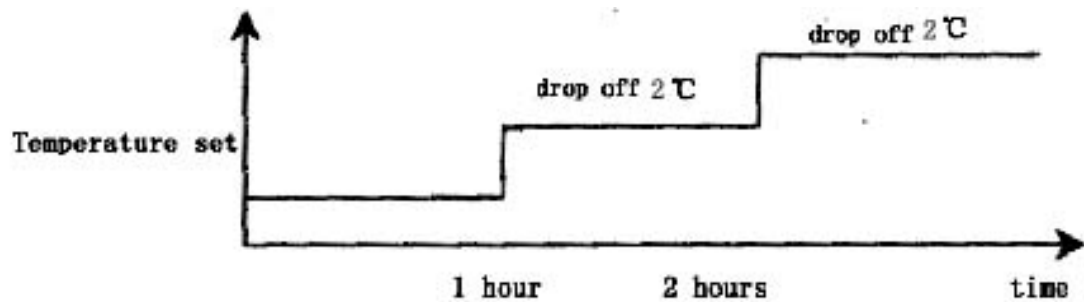
7. Sleep operation

7.1 When the air conditioner enters into the mode of sleep, the indoor wind speed will turn into the air quantity of “mute”.

7.2 When the sleep operation goes under the mode of refrigeration, the temperature set rises by 1 automatically every one hour. And the air conditioner will be powered off after sleep mode has worked for 7 hours.



7.3 When the sleep operation goes under the mode of heating, the temperature set drops by 2 automatically every one hour. And the air conditioner will be powered off after sleep mode has worked for 7 hours.



7.4 When the button of mode selection is pressed down, the function of sleep will be cancelled.

7.5 Sleep operation is effective under the modes of refrigeration and heating. When sleep button is pressed down, the sleep operation can begin or end.

7.6 Sleep function does not exist under the automatic mode, the situation of dehumidification or the circumstance of ventilation.

8. Timing operation

8.1 When timing is set, timing indicator will turn light.

8.2 The time set by timing is 12 hours at most. The timing unit is 1 hour. Even if the operation mode is changed, the timing function will still work.

8.3 Power-off at a fixed time

The power-off at a fixed time can be set only if the air conditioner is on. And it continues to work though the power-off at a fixed time has been already set. When it comes to the fixed time, the indoor and outdoor fans will be shut down.

8.4 Power-on at a fixed time

The power-on at a fixed time can be set only if the air conditioner is on. And it continues to be off though the power-on at a fixed time has been already set. When it comes to the fixed time, the indoor and outdoor fans will start to operate.

9. Emergency switch

When the soft-touch switch is pressed, the air conditioner will be powered on and the operation indicator will flicker (1 time per second). And it goes into the mode of automatic operation in 20 seconds. When the soft-touch is pressed once again, it will be powered off. When the air conditioner goes under the mode of automatic operation, the air door will assume the appearance of automatic air door. Under the mode of heating or refrigeration, the temperature set will be 24 and the wind speed will turn that under the “high power” mode. Under the dehumidification operation, the temperature set will be T ring-2 and the air conditioner can work upon the instructions sent by remote control.

10. Overload control and various protection functions:

10.1 Temperature control (overheat protection).

10.1.1 This function can only be applied to the mode of heating, not others.

10.1.2 When the temperature of indoor coiled pipe reaches more than 57 , outdoor fan will stop working.

10.1.3 When the temperature of indoor coiled pipe drops to less than 52 , outdoor fan will resume to operate normally.

10.2 Temperature cut-off control function (overheat protection)

10.2.1 This function can only be applied to the mode of heating, not others.

10.2.2 When the temperature of indoor coiled pipe reaches more than 64 which lasts more than 10 seconds, the compressor and outdoor fan will all stop working.

10.2.3 After 3 minutes' shut-down, the compressor will resume to operate if the temperature of indoor coiled pipe drops to less than 52 .

10.3 Function of preventing indoor coiled pipe from being frozen (supercooling protection).

10.3.1 This function can only be applied to the operation mode of refrigeration or dehumidification, not others.

10.3.2 When the temperature of indoor coiled pipe drops to -2

which lasts more than 2 minutes, the compressor will stop operating and the indoor fan will go by air quantity set.

10.3.3 When the compressor stops working, it can only be restarted only if the temperature of indoor coiled pipe rises to more than 7 or the power-off of the compressor lasts more than 6 minutes.

10.4 Protection function of short or open circuit of temperature sensor

10.4.1 Powered on, when it is detected that the T ring signal sent by indoor environment temperature sensor is abnormal, the air conditioner will work under the mode of heating and will not be powered off if the signal received from remote control is “heating” or it will work under the mode of refrigeration and will not be powered off if the signal received from remote control is “refrigeration” or it will work for 8 minutes and then stop for 3 minutes with the wind speed of “mute cycle dehumidification” if the signal received from remote control is “dehumidification”. Besides, the signal of automatic mode sent by remote control will not be effective, nor will the signal of automatic button power-on and the related breakdown can be indicated at the same time.

10.4.2 When it is detected that the T internal coiled pipe signal sent by indoor coiled pipe temperature sensor is abnormal, the freezing-proof, cold-wind-proof and overheat-proof functions

will be screened. Under the mode of heating, when the compressor is powered on, indoor fan will be started after 30 seconds' delay with the wind speed as set while when compressor is powered off, indoor fan will be turned off after 30 seconds' delay and the related breakdown can be indicated at the same time.

10.4.3 When it is detected that the T external coiled pipe signal sent by outdoor coiled pipe temperature sensor is abnormal, the air conditioner will work for 50 minutes, defrost for 10 minutes and heat in cycles if the signal received from remote control is "heating" and the related breakdown can be indicated at the same time while the air conditioner will not be powered off and will operate normally if the signal received from remote control is heating or defrosting or ventilation and the related breakdown can be indicated at the same time.

10.5 disposal of indoor PG electric motor abnormality

When indoor PG electric motor is loaded with voltage, the indoor fan will operate under the mode of "weak wind" automatically if the pulse signal feed backed by the indoor electric motor is not detected within 12 seconds. If the feedback signal detected is normal, the indoor fan will resume the turning speed set and the related breakdown indication will be disappear.

10.6 Function of charatron display

When the controller is normal, there will be no charatron display under the circumstance of power-off. When air conditioner is powered on, the charatron will display room temperature under the normal situation. If the temperature set is changed, the charatron will show the temperature set which sparkles at the rate of 1 time per second. Then it will display room temperature once again in 5 seconds. The display range of room temperature is 0~79 .

11. Function of breakdown indication

HS, HSA series (charatron); HV (VFD display)

Breakdown cause	Display way	Display priority class
PG feedback abnormality	E4	1
T ring abnormality	E1	2
T internal coiled pipe abnormality	E3	3
T external coiled pipe abnormality	E2	4

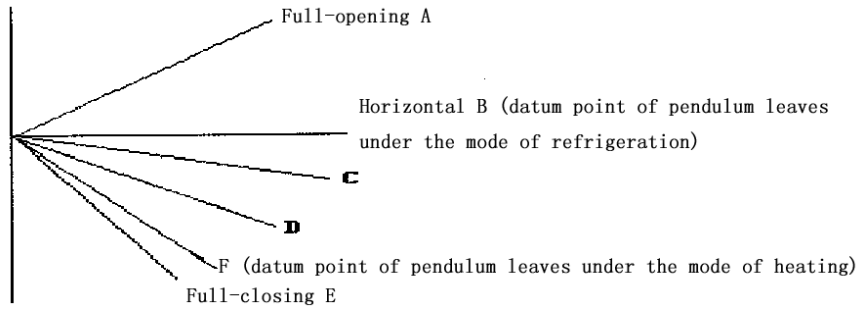
12. Adjustment function of air door direction by pendulum leaves

- 12.1 When the air conditioner is powered on for the first time, the pendulum leaves will move to the direction of full-opening and then to the direction of full-closing wherever they are placed.
- 12.2 When the air conditioner is powered off, the pendulum leaves will move up to “close” position immediately wherever they are placed after the fan comes to an end.
- 12.3 Under the mode of refrigeration, the pendulum leaves will first move to the full-opening position and then move to the horizontal position and at last move under the mode set while under the mode of heating, they will first move to the full-opening position and then backswing by 5° and at last work under the mode set (for details, please see the following diagram).
- 12.4 Pendulum wind: automatic air door and manual air door will be controlled by one button.
- 12.5 When the pendulum leaves move from full-opening position to full-closing position at the time of power-on or from starting position to full-closing position at the time of power-off, the speed will be 20° per second while the speed under the instruction situation will be 5° per second.

Swing angle under the mode of refrigeration: BD is 35 ± 2

Swing angle under the mode of heating: FC is 40 ± 2

Backswing angle under the mode of heating: EF is 5



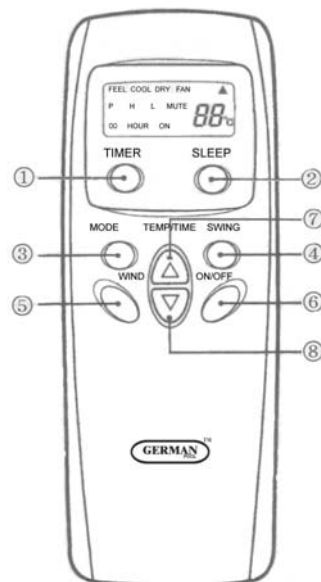
13. Self-checking function of controller

After the automatic button is pressed, the air conditioner will be powered on and enter into the process of self-checking:

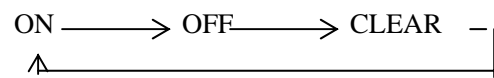
Buzzer sounds two times → operation indicator turns on → timing indicator turns on → compressor acts → four-way valve acts → outdoor fan acts → electric heating acts → indoor fan acts → buzzer sounds one time which means that air conditioner goes into the state of order-waiting and the self-checking comes to an end.

14. Remote control

Name and functions of the button on the remote control

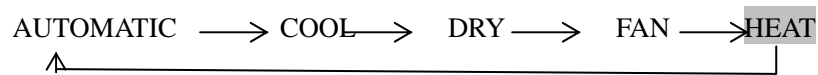


(1) Timing ON/OFF button: set the timing mode. After each pressing, the mode will be changed. It shows in the following display.



(2) Sleeping button: which enables you to start the automatic operation in sleeping mode and stops by pressing on it again.

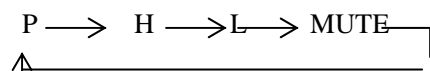
(3) Selection button for operation mode: which enables you to select different operation modes, after each pressing, the operation mode will be changed. It shows in the following display.



Remarks: Only cool type remote control has no heat mode

(4) Wind direction adjusting button: press the button, the horizontal airflow direction plate can adjust automatically. When you have the desired wind direction, please press it again, the airflow direction plate will maintain the same position.

(5) Fan speed selection button: you can select fan speed from “Power”, “High”, “Low”, and “Mute”.



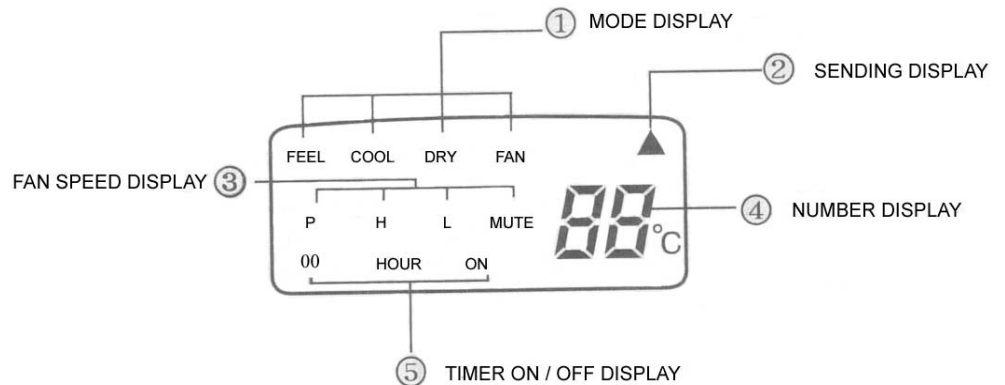
(6) ON/OFF button: you can start the air-conditioner by pressing this button and stop its operation by pressing it again.

(7) Setting button▲: Press the button, the setting temperature or timer

will increase.

(8) Setting button ▼: Press the button, the setting temperature or timer will decrease.

Display



- (1) Mode display: press the MODE button, it shows the current operation mode. You can select “Automatic”, “Cool”, “Dry”, and “Fan” “heat” operation mode. (cold wind type has no heating mode)
- (2) Sending display: when the remote control sends correct and effective signal each time, the sign displays intermittently each time.
- (3) Fan speed display: press the “WIND” button, the fan speed will display. You can select fan speed from “Power”, “High”, “Low”, and “Mute”.
- (4) Number display: which displays the setting temperature, in the circulation operation mode, the temperature number does not display.

(5)Timer ON/OFF display: which displays the timer states, “the timer ON” and “the timer OFF” do not set at the same time.

Remark: For illustration, all display items are listed here. When the mode operates, the relevant items display on the remote control.

Application

Fix batteries

- (1) Slide open the cover according the direction indicated by arrowhead.
- (2). Put into two AAA new batteries, position the batteries to right electric poles (+&-).
- (3)Put back the cover.

Make sure to connect the wire to independent power source socket before you use the remote control.

Automatic operation mode

- (1)Press the MODE button, select the automatic operation mode.
- (2)Press the TEMP/TIME button, set the temperature, temperature can be set at 1 °C difference range from 16-32 °C.
- (3)Press the WIND button, you can select fan speed from “Power”, “High”, “Low”, “Mute”.
- (4)Press the ON/OFF button, the operation indicator is on, the air-conditioner starts to operate in the Automatic mode. Press the button again, the air-conditioner stops.

Cooling/heating operation mode (cold wind type has no heating operating)

- (1) Press the MODE button, select the Cooling operation mode.
- (2) Press the TEMP/TIME button, set the temperature, temperature can be set at 1 °C difference range from 16-32 °C.
- (3) Press the WIND button, you can select fan speed from “Power”, “High”, “Low”, “Mute”.
- (4) Press the ON/OFF button, the operation indicator is on, the air-conditioner starts to operate in the Cooling mode.
Press the button again, the air-conditioner stops.

Drying operation mode

- (1) Press the MODE button, select the Drying operation mode.
- (2) Press TEMP/TIME button, set the temperature, temperature can be set at 1 °C difference range from 16-32 °C.
- (3) Press the ON/OFF button, the operation indicator is on, the air-conditioner starts to operate in the Drying mode.
Press the button again, the air-conditioner stops.

Remark: In the drying operation mode, the fan speed is automatically set to “Mute”.

Circulation operation mode

- (1) Press the MODE button, select the Circulation operation mode.
- (2) Press the WIND button, you can select fan speed from “High”, “Low”, “Mute”. In the circulation operation mode, you cannot select the speed of “Power”.
- (3) Press the ON/OFF button, the operation indicator is on, the air-conditioner starts to operate in the Circulation mode.
Press the button again, the air-conditioner stops.

Remark: In the circulation operation mode, you cannot set the temperature.

Timer setting

□ Set the “Timer ON” (it operates only when the air-conditioner shuts off.)

(1) Press the TIMER button, select the “Timer ON”, the remote control display “00 HOUR ON”; “ON” displays intermittently.

(2) Press the TEMP/TIME button, set the time. When “ON” stops intermittently, the “Timer ON” can be set.

□ Set the “Timer OFF” (it operates only when the air-conditioner is running.)

(1) Press the TIMER button, select the “Timer OFF”, the remote control display “00 HOUR OFF”; “OFF” displays intermittently at the same time.

(2) Press the TEMP/TIME button, set the time. When “OFF” stops intermittently, the “Timer OFF” can be set.

Remark: The remote control can only be set within 12 hour intervals.

Sleeping operation mode

(1) Press the SLEEP button, the sleeping indicator light of indoor unit flashes.

(2) After the setting of sleeping mode, the cooling operation enables the set temperature to increase 1 °C after 1 hour and another 1 °C automatically after another hour.

(3) After the setting of sleeping mode, the cooling operation enables the set temperature to increase 2 after 1 hour and another 2 automatically after another hour.

(4) The air-conditioner runs in sleeping mode for 7 hours and stop automatically.

Remark: 1. in sleeping mode the fan speed changes automatically to “Mute”.

2. Press the MODE button, WIND button or ON/OFF button, the

remote control clears sleeping mode away.

Attention:

- Aimed the remote control at the receiver on the air-conditioner.
- The remote control should be within 8 meters away from the receiver.
- No obstacles between the remote control and receiver.
- Don't drop or throw the remote control.
- Don't put the remote control under the strong sunrays or heating facilities and other heating sources.
- Use two AAA batteries, don't use rechargeable batteries.
- Take the batteries out of remote control before stop using for long.
- When the noise of transmitting signal can't be heard from indoor unit or the transmission symbol on the display screen doesn't flare, batteries need be replaced.
- If reset phenomenon occurs on pressing the button of the remote control, power of the batteries is deficient and need to be replaced.

Chapter 5 Main Technical Data

Type	ASW-H12A4/HSAR	ASW-12A4/HSAR
	ASW-H12A4/HSR	ASW-12A4/HSR
Rated cooling capacity (W/BTU)	3200/11000	3200/11000
Rated heating capacity (W/BTU)	3800/13000	
Rated cooling current (A)	5.4	5.2
Rated heating current (A)	5.5	
Rated cooling power (W)	1190	1150



Rated heating power(W)		1210	
Air circulate (m ³ /h)		500	500
Power supply (V, Hz)		220~240, 50	220~240, 50
Refrigerant		R407C	R407C
Dehumidifying capacity(Kg/h)		1.2	1.2
EER		2.7	2.8
Noise dB(A)	Indoor unit	39	39
	Outdoor unit	51	51
Dimensions (mm)	Indoor unit	176×890×296	176×890×296
	Outdoor unit	260×760×540	260×760×540
Packing Dimension(mm)	Indoor unit	250×950×350	250×950×350
	Outdoor unit	368×882×585	368×882×585
Weight (kg)	Indoor(net/gross)	10.5/12	10.5/12
	Outdoor(net/gross)	38/40	37.5/39.5
Applicable room area□m ² □		12□20	12□20

NOTE: 1.Specifications are standard values calculated based on rated operation conditions, they will vary in different working condition

2. Our company has quick technical improvement. There will be no prior notice for any change of technical data. Please read the nameplate on the air conditioner

Chapter 6 Dismantling Procedure

Indoor Unit

Operating step	Photo
<p>1. To remove the panel and connecting wire cover.</p> <ul style="list-style-type: none">· Take off the screws of the connecting wire cover and remove the cover.· Then remove the panel.	 <p>A photograph of a white indoor air conditioning unit. The top panel has been removed, and the connecting wire cover is also detached, lying on the surface below the unit. The unit is shown from a front-three-quarter view. A yellow date stamp '2003/09/24' is visible in the bottom right corner of the photo.</p>
<p>2. To remove the air filter.</p>	 <p>A photograph of the same white indoor air conditioning unit. The top panel is now fully removed, revealing the internal components and the air filter slots. The connecting wire cover remains detached below. A yellow date stamp '2003/09/24' is visible in the bottom right corner of the photo.</p>

3. To remove the inter frame assembly
- Take off three screws of inter frame assembly
 - Then take off the inter frame assembly



4. To remove the electric control box
- Take off one screw
 - Loose one obverse clip
 - Remove the electric control box



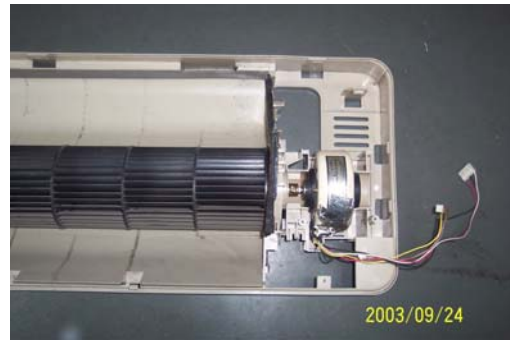
5. To remove the water-collecting plate assembly
- Loose three obverse clips
 - Take off the electric control box



6. To remove the evaporator assembly
- Take off one screws of right locating cover and two screws of left locating cover
 - Remove the pipe strap
 - Remove the evaporator assembly






7. To remove the through-flow fan
- Take off the screws of though-flow fan
 - Remove the though-flow fan



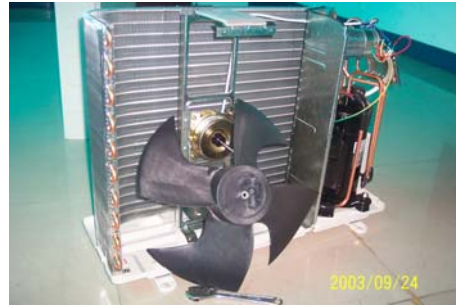
8. To remove the motor
- Take off three screws of right locating cover
 - Remove the motor



Outdoor Unit

Operating step	Photo
<p>1. To remove the top cover assembly</p> <ul style="list-style-type: none">• Take off six screws of top cover	 <p>The top photograph shows the exterior of a white outdoor air conditioning unit. The front features a circular fan grille. On the right side, there is a red logo with the letters 'AUX' and the Chinese characters '奥克斯' below it. A yellow timestamp '2003/09/24' is visible in the bottom right corner. The bottom photograph shows the interior of the unit with the top cover removed. It reveals the condenser coils, a fan, and various electrical components. A yellow timestamp '2003/09/24' is visible in the bottom right corner.</p>
<p>2. To remove the panel assembly</p> <ul style="list-style-type: none">• Loose screws of panel assembly• Take off panel	 <p>This photograph shows the interior of the outdoor unit with the panel assembly removed. A large black fan is visible on the left side, and the condenser coils are on the right. Various electrical wires and components are also visible. A yellow timestamp '2003/09/24' is visible in the bottom right corner.</p>
<p>3. To remove the right plate assembly</p> <ul style="list-style-type: none">• Loose nine screws of left plate assembly• Take off right plate	 <p>This photograph shows the interior of the outdoor unit with the right plate assembly removed. The compressor is visible on the right side, and the condenser coils are on the left. Various electrical wires and components are also visible. A yellow timestamp '2003/09/24' is visible in the bottom right corner.</p>

4.To remove the axial-flow fan and fan motor



5.To remove the electric assembly



Chapter 7 Brief introduction of installation

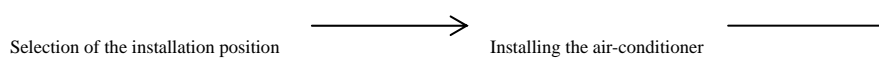
The installation of air-conditioner should meet with the “Installation Instruction”.
The machine must be installed correctly by professional technicians according to the “Installation Instruction”.

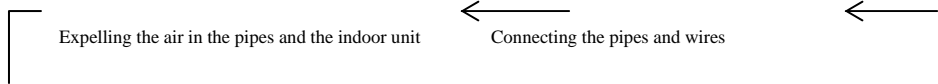
Guide to customer

- The customer should provide a suitable power supply source, its voltage should be in the range of 90-110% of its rated voltage.
- The power supply circuit should have MCB leakage protection. The capacity should be more than 1.5 times of the maximum current.
- Must use independent circuit and suitable grounding socket matching with the plug of air-conditioner.
- The wiring must be installed by qualified electrician according to the electrical safety requirements.
- The air-conditioner must be well grounded, the switch of the main power of air-conditioner must be reliably grounded.
- The power supply wire, must be changed by qualified electrician.

Installation Instruction

Installation order:



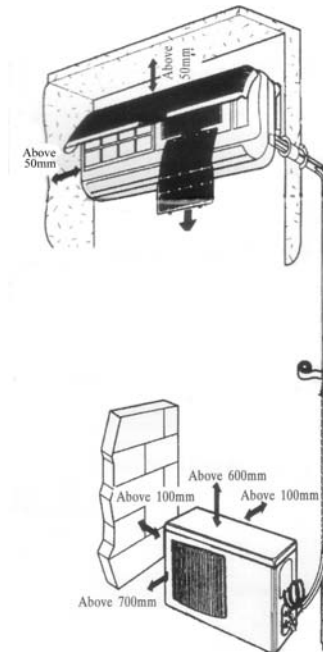


→ Testing

Selection of the installation position

Indoor Unit

- There is no heating and steaming nearby.
- No obstacles for installation from nearby.
- Keep good air circulation.
- Convenient to adopt measures to noises.
- Don't install them near the doorway.
- Make sure to have the distance specified in the picture between the wall, furniture and other obstacles.
- 2 meters high above the floor.



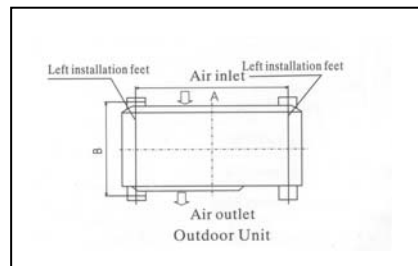
source
position
reduce
ceiling,

Outdoor Unit

- In case that you put up a canopy to protect it from rains and sunrays, pay attention not to cause any obstacles for the heating dispersion for the condenser.
- Don't keep animals or plants near the installation location for the hot air from the outdoor unit will affect them.
- Make sure to have the distance specified in the picture between ceiling, wall, furniture and other obstacles.
- Stay away from heating source and inflammable air.
- The installation base and supporting frame should be strong and secure. The machine should be at a level surface.

Installation of the Outdoor Unit

- The outdoor unit must be firmly fixed avoid falling in strong wind.
- Install on the cement base as in the drawing.
- If it is installed at seaside or at a place above the ground and with strong wind, the AC should be installed against the wall to ensure the normal operation of the fan and the blocking plate should be used.

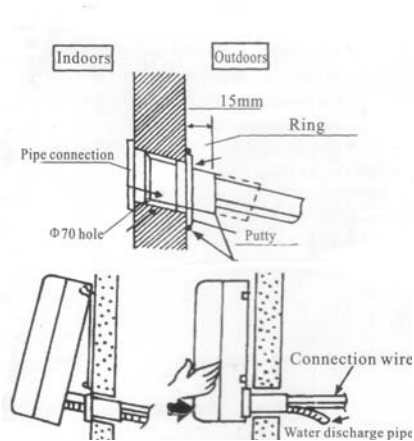


to
high

- If it is an overhanging installation, the structure of the mounting wall should be made of solid, cement or materials with equivalent strength, and of sufficient support capacity. Otherwise, measures such as reinforcement, support or vibration damping should be adopted.

Installation of the Indoor Unit

- First make changes to wall and make sure that is hard and secure. Using four “+” type screws to fasten the installation board onto the wall. Keep it level in horizontal direction and perpendicular in vertical direction. Otherwise it might cause water drips when air-conditioner is running in cooling operation.
- Drill 70mm diameter pipe hole at the left lower or right lower side of the installation board. The hole shall slant outward slightly.

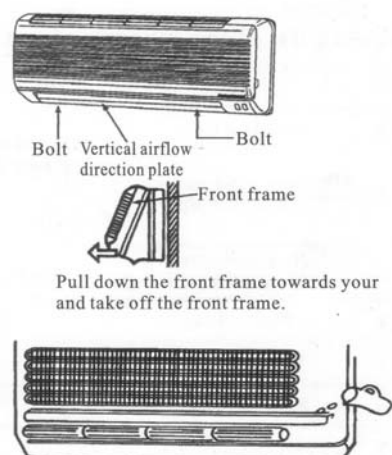


- Hang the indoor unit to the board and make sure the machine is in the middle of the board.
- Push the machine towards the left lower and right lower side of the installation board until the hangers enter tightly into the grooves (it produces “click” sound)

Check the water discharge

1. Take off the frame from the unit cover.

Take off the front frame for maintenance according to the



following steps:

- As shown in the picture on the right, take off two covers from the front frame and then unfasten two fixture screws.
- Pull the front frame towards yourself and take it off.

To put the front frame back, reverse the steps.

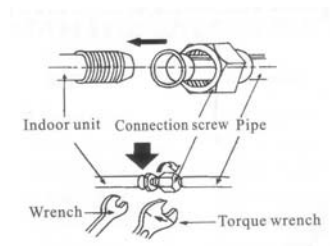
You should check whether the front frame is firmly fixed into the fixture groove on the top.

2. Check the water discharge

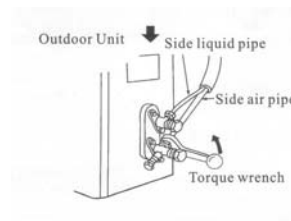
- Pour a cup of water into groove.
- Check whether the water flow through the water discharge hole.

Pipe Connection

- Connect the pipe to the unit: point to the pipe and fasten the connection screw at hand and then by wrench until it is fastened. The fastening direction is the picture.
- Pointing towards the center of pipe, fasten with strength.
- Wrench the screw in the end until you hear

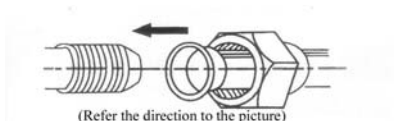


center of
first by
tightly
shown in



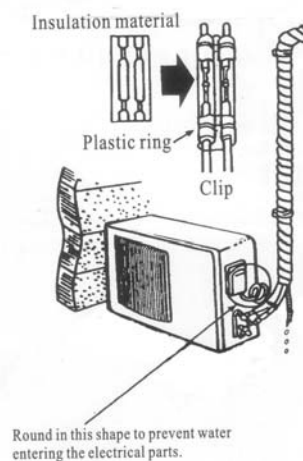
the screw

the



The fixing of pipe

- Wrap up all pipe, water discharge and connection wire from top to below.
- Cover the connection parts with insulation material and fix them with plastic rings.
- Wrap up the pipes with tape alongside and fix them to the wall with clips.

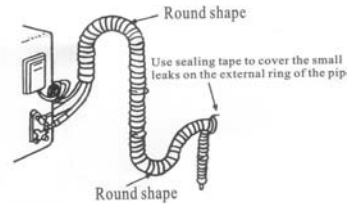


two

the wall
These

steps are usually adopted when outdoor unit is installed below the indoor unit.

- In case that you want to have additional water discharge pipe, the end of pipe should be within certain distance from the floor (to prevent water from draining back into the pipe). Fix it onto the wall so it won't be swayed by wind.
- Wrap the pipes and connection wire below to top.
- Wrap up the pipes that are rounded way shown in the picture so it can water from entering the room.
- Use clips or other fixture to fasten to the walls.

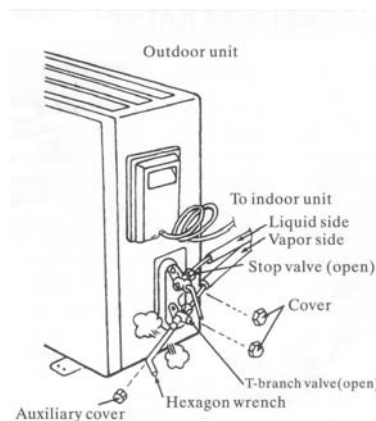


well from
up in the
prevent
the pipes

Expelling the air in the pipes and the indoor unit

Expelling the air: humid air in the refrigerating system might cause trouble of compressor.

- Take off the cover from the stop and T-branch valve.
- Take off the auxiliary cover from T-branch valve.
- Turn the stop valve rod anti-clock an angle of 90 degree, keep it open seconds and close the valve.
- Check whether there is air leakage connection parts of pipes.
- Push the top rod of T-branch valve hexagon wrench to expel air.
- Repeat the third and fifth steps.
- Open the stop and T-branch valve with a hexagon wrench to make the unit operate.
- No leakage is allowed, please check all the piping connection parts. You must test the leakage, generally, it can be tested by soap water.



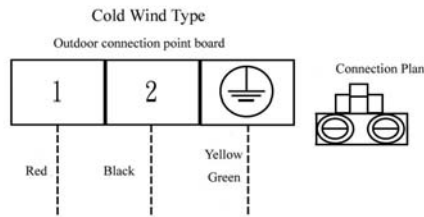
valve
the
wise to
for 8
at all
by

Electrical connection

- Unscrew the screw, take off the control panel cover from the unit.
- Cooling type: connect the wire to the related connection point on the panel and connect the signal connection plug.

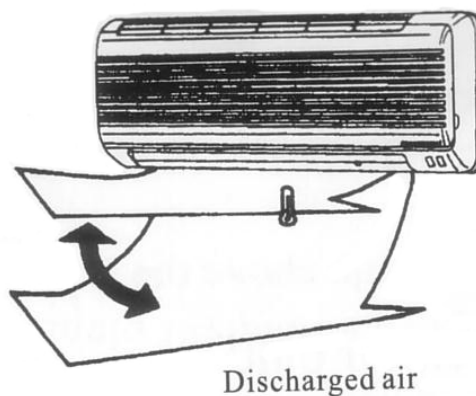
Remarks: yellow and green cord should be connected to connection point with  mark.

- Fasten the fixture of wire to control panel.
- Screw up the control panel cover to its original place.



Test running

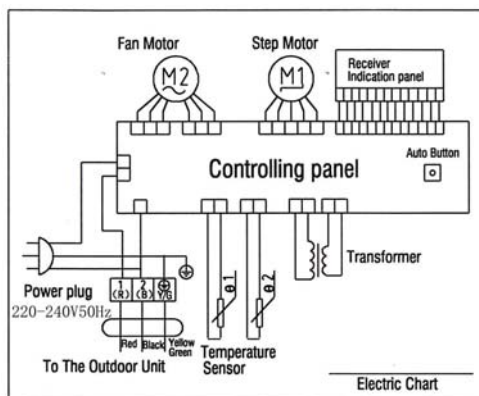
- Make sure that the pipes and wires are connected.
 - Make sure that both the liquid valve and gas valve on the side are completely open.
1. The connection of power source
 - Connect the wire to independent power source socket.
 - Preparation of remote control.
 - Run the air-conditioner in cooling operation mode for 30 minutes or longer.
 2. Performance evaluation
 - Test the out and in air temperature.
 - Make sure that the temperature difference between the out and in air is greater than 8°C.



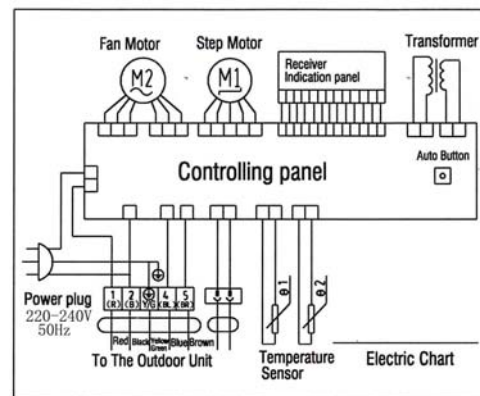
Items of attention

- Fix the machine firmly, otherwise it will produce noise and vibration.
- Install the outdoor unit where it will not disturb your neighbor.

Electrical connection diagram:

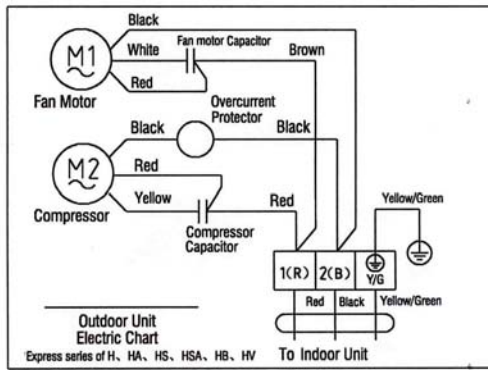


COOL SERIES

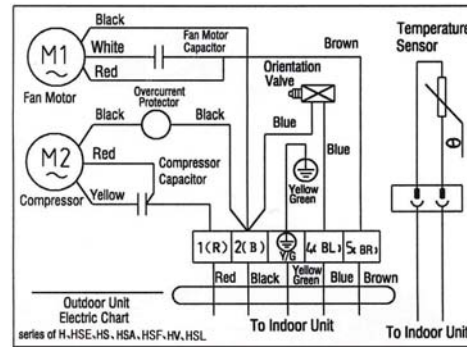


HEAT PUMP

Indoor unit electric connection diagram



COOL SERIES



HEAT PUMP

Outdoor unit electric connection diagram

Chapter 8 Fault Analysis of the Product Available and Typical Examples

1 Procedure of deciding the faults

Before maintaining the air conditioner, firstly you should know the phenomena of the faults decide the location of the faults, analyze the reason the faults occur, and then search for ways to solve the faults. The detailed procedures are: Look, Listen, Touch, Measure, Analyze

Look: Observe air conditioner's running. I.e., vibration; condensation on evaporator; leakage; electrical and mechanical connection, etc.

Listen: Listen to kinds of sounds of the running air conditioner. Identify the abnormal noise from the sounds.

Touch: Touch the key position and position faulty. Touch the temp of air circulation to decide the heating or cooling effect; as far to abnormal sound, besides adopt "listen", you should touch the frame, the pipe of the air conditioner to feel the vibration. Touch the easily heated parts, i.e. compressor, motor; touch them to feel the temp. (Warning: High temp).

Measure: Measure the parameters of the air conditioner and relevant parts by some instruments. Usually used instruments: amperemeter, voltmeter multimeter thermometer, etc, i.e., Use multimeter to test whether the capacitor is open, the insulation of the wire and the parameters of other electrical parts; use the thermometer to measure temp of airflow.

Analyze: Analyze the above results, decide the reason and location of faults, and seek the solutions.

2 Types of Normal Faults

The type of faults is various. The normal faults can come down to six types: leaks, block, open circuit, burnt, lock, scrape.

Leak Mainly is leakage of R407C from cooling pipe system and parts; leakage of condensation water from indoor units; electrical leakage from electrical system and wires.

Block Mainly is block of the pipe system, block of capillary, block of strainer or valve.

Open Circuit Mainly is open circuit of electrical circuit, include: fuse blowing out, connectors broke.

Burnt Mainly is burnout of fan motor, of compressor, of capacitor, of transformer.

Lock Mainly is lock of compressor, four-way valve.

Scrape Mainly is scrape of indoor/outdoor fan and nearby parts, and sound abnormally.

3 Examples

3.1 Leakage and seepage of indoor unit

Reason	Check to be made	Proposed remedy
Improper installation. Indoor drain position is lower than outdoor or slanting installation of indoor unit	Observe if the condensation water drain out, if the indoor unit is declining	Level the indoor unit and adjust the height
Water collecting plate is blocked	Check if the plate is blocked	Remove the matters block the plate
Water collecting plate or drain pipe is cracked	Check the location, ensure if it is cracked	Replace the plate or pipe
Loosen wrap belt, heat-preservation layer is bad or layer behind indoor units is bad	Connecting pipe bleed the water, condensation water exists behind the indoor unit, the wall is wet and turn colors	Rewrap the connecting pipe, add new heat-preservation layer
High ambient relative humidity, low temp/speed of air flow	Water is blow out from air outlet, or water drips from the outlet. Lower speed of air flow	Suggest set the units to dehumidifying mode at high speed of air flow, to lower relative humidity; if the high speed is still felt lower, the fan motor must be checked

3.2 Poor cooling or heating effect

Reason	Check to be made	Proposed remedy
The cooling/heating load of the room is heavy or the room is not closed perfectly	Calculate the area of the room, check the close of the room	Enlarge the capacity of the units, improve the leakproofness of the room
Insufficient refrigerant R407C	Measure the operating current	Add R407C welding the leaked point
Too much R407C	Air intake temp is too low, condensation water on air intake pipe is too much, temp of discharge is too high	Discharge a little R407C
Effect of heat exchange is too poor	Dust on outdoor condenser and indoor filter is too much	Cleanup filter and condenser
Some of the windings of motor fan is short-circuit, so cause speed decline	Speed of indoor/outdoor fan is too low, air circulation is small	Repair or replace motor
Running condition is too bad	Check if the installation is proper; outdoor temp is too high when heating	Improve the condition, use auxiliary heating
Convexity exists in compressor or valve or lock of compressor	No high-low pressure difference, no clear temp difference in air intake inlet or discharge outlet of compressor	Replace compressor or valve
Openness of check valve is too small or the system partly or completely blocked	Check the openness; partly frost on outdoor pipe system	Open the valve; use high pressure N ₂ to clean out the block

3.3 Big noise or abnormal sound

Reason	Check to be made	Proposed remedy
Foreign matters in wind guide or impeller fan	Check if they are	Clear away
Fan is distorted or in bad balance	Check them	Replace indoor/outdoor fan
Improper location of fan, so fan touches the housing	Open the unit or move the fan manually, find the location	Adjust the position
Bearing of the fan is sluggish or destroyed	Check the bearing	Replace the bearing

Connecting pipe vibrates due to improper installation, or touch the lower frame	Check the connecting pipe	Tidy up the pipes, eliminate the noise source
Outdoor pipes touches	Check the vibration of the pipes, check if them touch	Tidy up the pipes
Abrasion of the parts of compressor	Check if the sound of compressor is normal	Replace the compressor

3.4 Frequently switch on/off of the compressor

Reason	Check to be made	Proposed remedy
Running voltage is too low	Measure the voltage	Add measures of voltage stabilization
Discharge temp is too high caused by insufficient of R407C, compressor is protected by overheat	Check condensation of air intake pipe or measure if operating current is lower than rated current	Check leakage point, welding or add R407C
Temp sensor is too close to evaporator or moved	Check the position of sensor	Adjust the position or replace the sensor
Air inlet/outlet of heat exchange is blocked or low speed of fan motor; indoor air filter is too dirty or blocked	Check indoor/outdoor heat exchange, speed of motor, air inlet/outlet	Cleanup the filter, remove the obstacle
Too much R407C	Too much condensation water on air intake pipe, high operating current	Discharge a little R407C
Bad insulation of compressor, high operating current, overcurrent proof	Check start or operating current	Replace compressor
Improper temp set	Check actual ambient temp	Reset

3.5 Promptly protected by halt after compressor starts

Reason	Check to be made	Proposed Remedy
Insufficient R407C	Little or no condensation water on air intake pipe, operating current is lower than rated current	Add R407C
Mixed with air in the system, vacuum is not good	Power varies when running	Vacuumize the system, recharge R407C

Blocked caused by water or impurity	Operating current is lower than rated current, part of the unit frosts heavily	use high pressure N ₂ to clean out the block, revacuumize and recharge R407C
Damaged compressor, high start current	Check the windings and insulation of compressor and if it is locked	Replace the compressor

3.6 The units blow out cool air when in heating mode

Reason	Check to be made	Proposed Remedy
Four-way valve doesn't work	Listen to the units if there is sounds of valve's working when heating or cooling	Replace the valve
Faults of control interrupter or other relevant circuits of the valve	Check the circuit	Repair or replace the control board
Insufficient R407C causes the insufficient heating capacity	Little condensation water on outdoor air intake pipe, low operating current	Add R407C
Connexity of compressor	Same temp of air intake inlet and discharge outlet of the compressor, no condensation in air intake inlet	Replace the compressor

3.7 The units doesn't work

Reason	Check to be made	Proposed Remedy
Bad connection of the power plugs, or no power plug	Check the socket	Repair or replace
Outdoor fuse or indoor fuse is burnt	Check if the fuse is good	Replace the fuse
Low voltage	Measure the voltage	Heighten the voltage of the power supply system
Wrong indoor temp set	Measure actual indoor temp, compare to the set temp(in cooling set temp should be lower than the actual, in heating, is higher)	Reset the temp

Wrong running mode of indoor units set	Check if running mode of two indoor units is the same(it is not available if one is heating and another is cooling	Reset
--	---	-------

3.8 Cannot receive the remote control signal

Reason	Check to be made	Proposed Remedy
Damaged remote control or low battery	Check if the indication is normal	Replace the remote control or battery
Short-circuit of connections of main control board to switch board	Check the board	Replace the components
Running mode of two indoor units is not the same	Check if one is heating and another is cooling	Reset
Indoor units are in test mode	Open the air intake grill to see the running mode	Adjust test mode to remote control mode

Remarks The above mentioned “faults” are the faults possibly occur, we will continue to collect the faults and analysis.

Chapter 1 photos and Features of products

Features of outlook and construction



ASW-H24A4/HSAR
 ASW-24A4/HSAR
 ASW-H24B4/HSAR
 ASW-24B4/HSAR

Deep x width xhigh 335x1153x190



ASW-H24A4/HSR
 ASW-24A4/HSR
 ASW-H24B4/HSR
 ASW-24B4/HSR

Deep x width xhigh(335x1153x190)



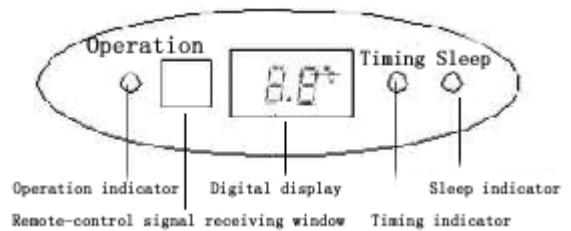
Deep x width xhigh 300x800x690
 All types



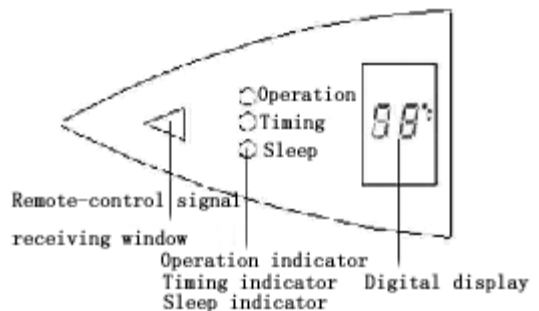
All types

Operation interface

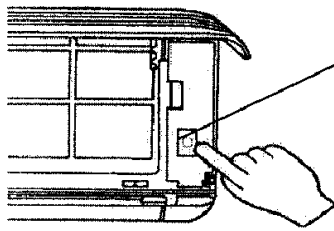
Inner operation interface of Type HSAR



Inner operation interface of Type HSR



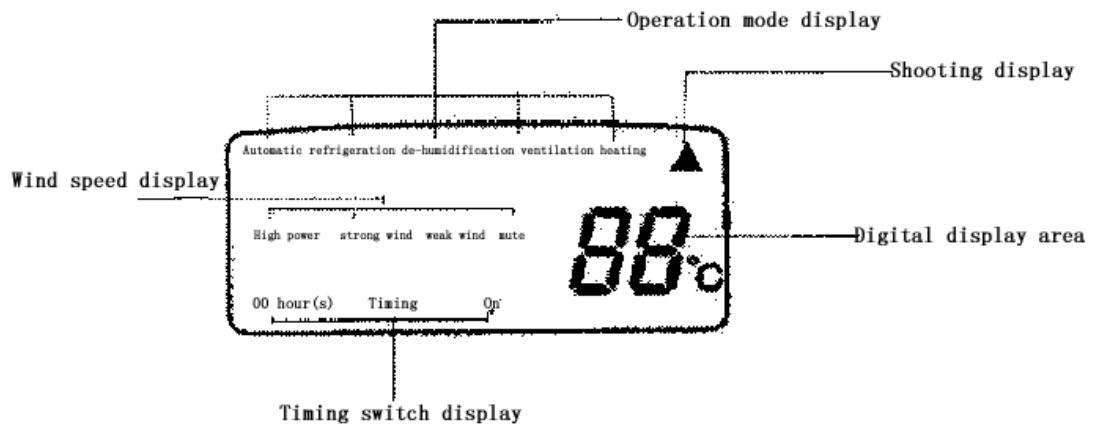
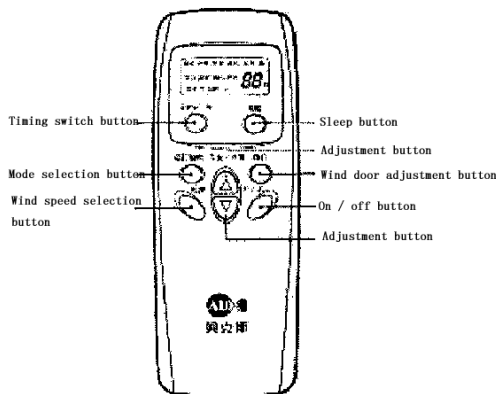
Emergency operation button of indoor types:



Compulsory button

- 1) When the air-conditioner works with the absence of remote control, it will stop working by pressing the compulsory button and it will resume working by pressing the compulsory button once again.
- 2) When remote control is useless, you can adopt the compulsory operation by which the air conditioner will go into automatic operation mode.

The operation interface of remote control:



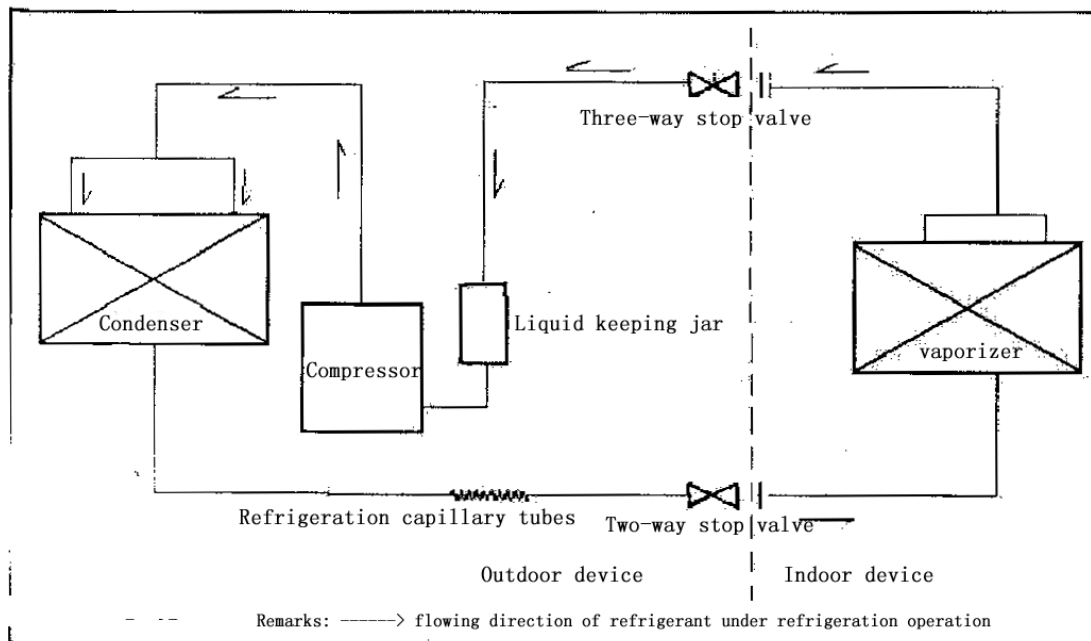
□ □ Features of products

1. Fashionable appearance
2. Compact Design
3. 7 Hours of Sleep Mode Operation
4. Economy Mode to Reduce Electrical Power Consumption
5. Clean breath efficient biological antibacterial filter gauze made from green plant elite refined by using international leading technology, with the function of filtering and suppressing bacteria, and able to absorb and kill various pathogens and harmful gases efficiently for a long period, prevent secondary pollution caused due to microorganism spreading, and ensure the health of your family
6. R407c cold medium is applied, environment-friendly, and avoid damages to ozonosphere
7. International famous-brand Toshiba Hitachi and Matsushita compressors are applied

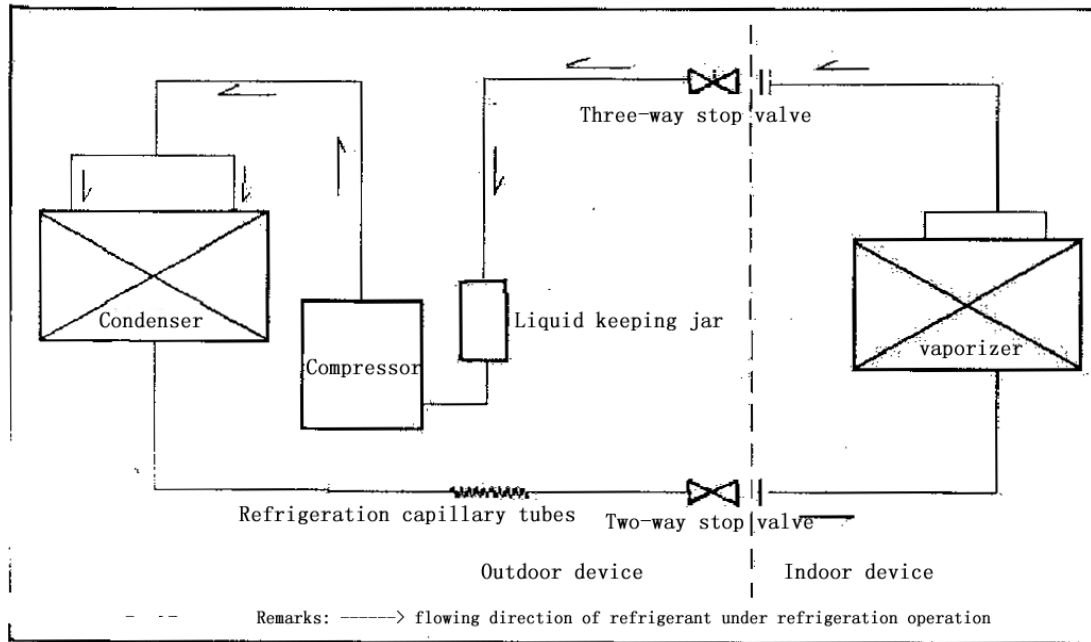
Chapter 2 Operating Principle

. Cooling

After the power supply is switched on, the machine is set to COOL mode. With the compressor being operated, the low-temperature and low-pressure refrigerant vapor is sucked into the compressor where it is turned into high-temperature and high-pressure gas. Then it is cooled down in the outdoor heat exchanger by the air and becomes liquid. After being throttled by the capillary, the refrigerant liquid comes into the indoor unit and then it evaporates in the indoor heat, exchanger, absorbing heat and reducing the room temperature. The evaporated refrigerant vapor returns to the outdoor unit and is again sucked into the compressor, completing the cycle. With the refrigerant cycling being kept on, the objective of lowering the room temperature is fulfilled.



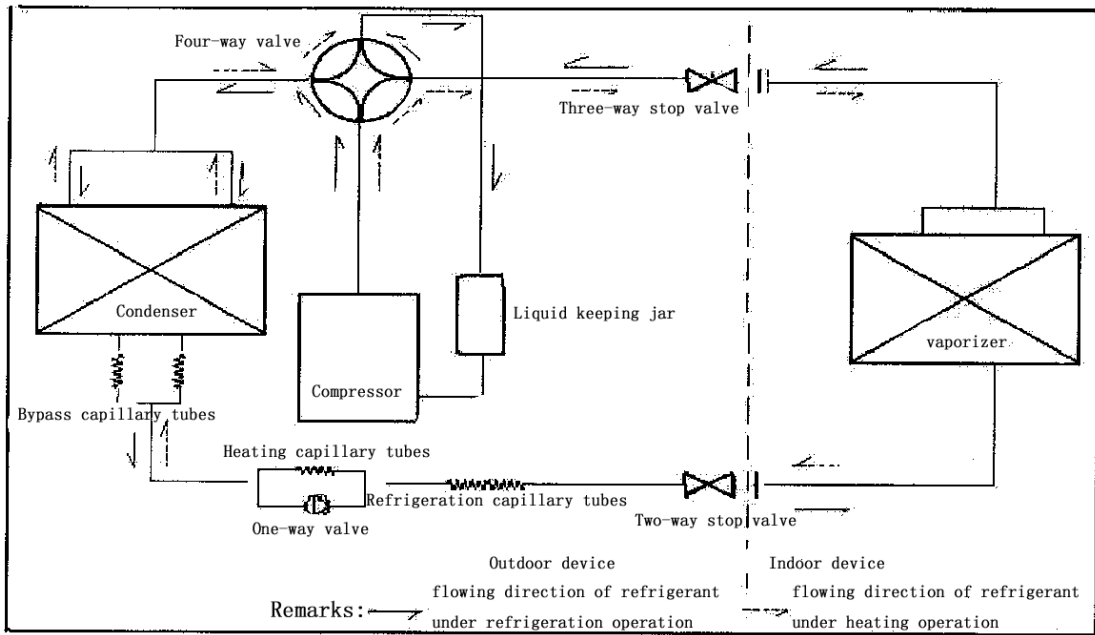
60 detachable cool series



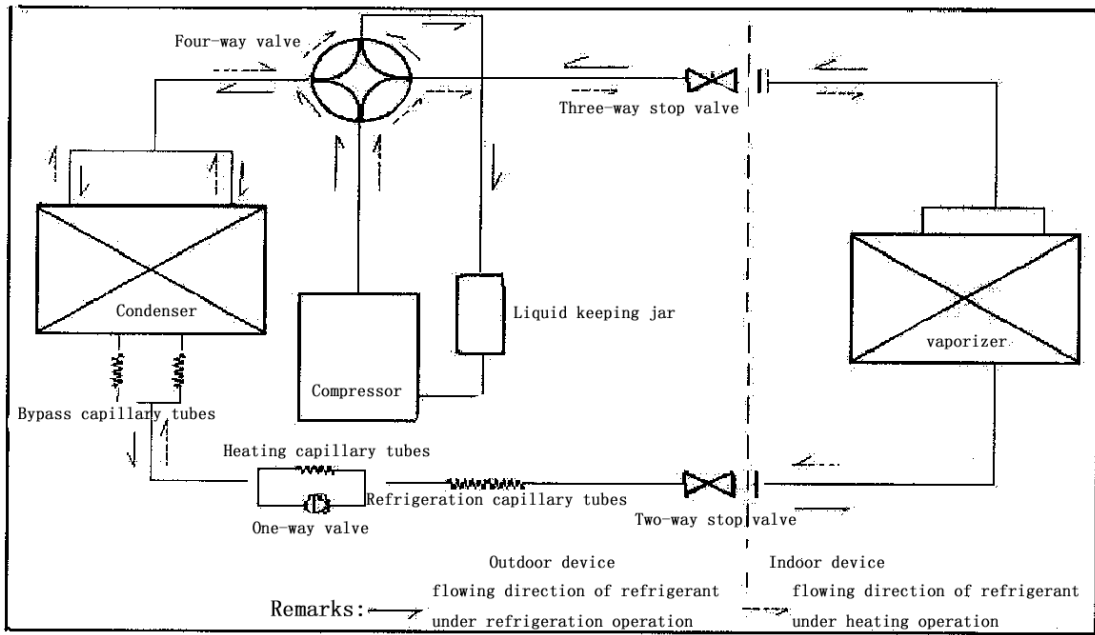
70 detachable cool series

□. Heating

After the power supply is switched on, the machine is set to HEAT mode and the coil of the electromagnetic four-way valve is energized. After the compressor starts to operate, the high-temperature and high-pressure refrigerant gas first comes into the heat exchanger of the indoor unit, where it is cooled, releases heat and increases the room temperature. The cooled high-pressure refrigerant is then throttled in the outdoor unit and returns to the compressor after evaporation. With such cycles being maintained, the objective of increasing the room temperature is fulfilled.



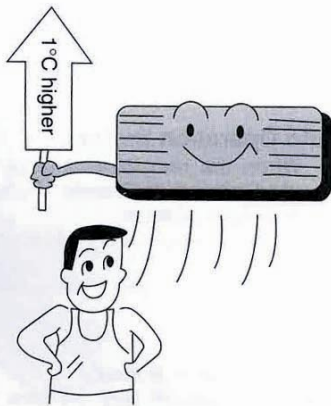
60 detachable cool & warm (type)



70 detachable cool & warm (type)

Operation Hints

- Adjust room temperature properly. Set the temperature 1°C higher than actually desired. Approximately 10% of electricity costs can be saved.



- Clean the air filter regularly. Blockage in the air filter reduces the airflow and lowers the cooling. Clean at least once every 2 weeks. Otherwise, 6% of electricity cost will be wasted.



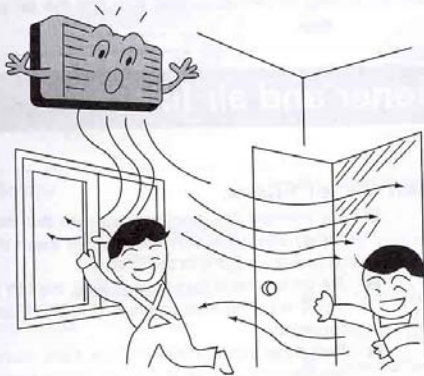
- Prevent waste with the Timer. Use Timer when sleeping or going out to save electricity cost.



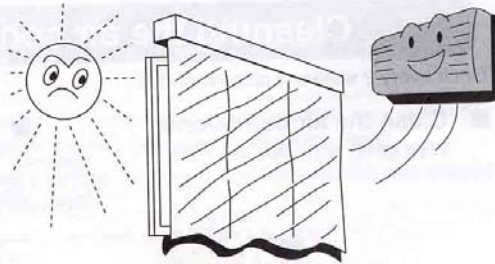
- Do not block the air outlet vents at outdoor unit. Otherwise, it will lower the cooling performance.



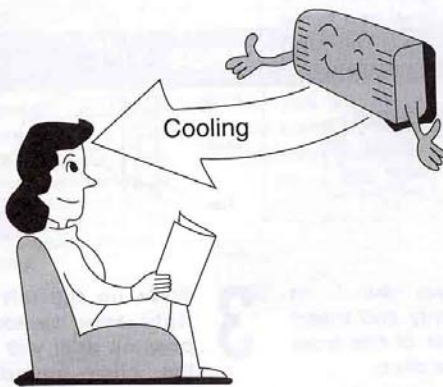
- Make sure that the doors and windows are shut. Otherwise, cooling performance will be reduced and electricity cost is wasted.



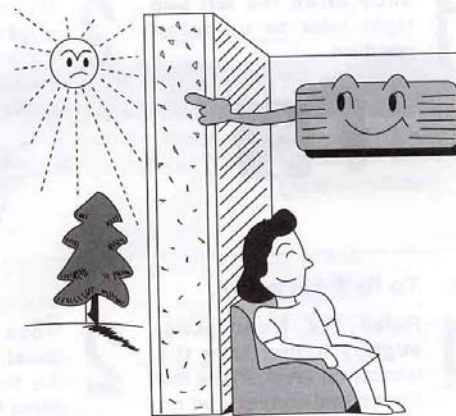
- Keep blinds or curtains closed. Do not let sunshine enter the room directly. 5% of electricity cost can be saved.



- Proper airflow direction adjustment. Set the airflow louvers horizontal for Cooling Operation. Operation result will be better.



- Use insulating material for better performance. Use insulating material during construction or renovations. It will save electricity cost.



Chapter 3 operation details

1. Overall

1.1 Protection of compressor

Whatever operation modes the air- conditioner is under, there will always be 3 minutes' time- delay protection unless it is on for the first time. When the compressor is switched on, it can not be shut down within 3 minutes (except under the modes of heating or defrosting) unless it is powered off or its operation mode is changed.

1.2 The operation indicator will turn light when the air conditioner is powered on.

1.3 The buzzer will sound immediately after the controlling device receives a correct and effective signal sent by the remote control.

1.4 Timing function can be applicable to all operation modes while sleep function can only be applicable to the modes of refrigeration and heating.

2. Automatic operation mode

2.1 When the air conditioner works, it can detect the indoor temperature automatically whereby its operation mode can be selected: refrigeration, heating or dehumidification.

2.2 When the indoor temperature reaches more than 27 , the air conditioner will operate under the mode of refrigeration.

2.3 When the indoor temperature reaches between 20 and 27 the air

conditioner will work under the mode of dehumidification (always mute).

2.4 When the indoor temperature reaches less than 20 , the air conditioner will work under the mode of heating.

2.5 Under this mode, the air conditioner will operate in the respect of blowing rate as set and its pendulum leaves will work according to the requirements of automatic ventilation door.

2.6 Once the operation mode is selected, it will not be able to be changed. When the air conditioner is shut down and then restarted, the operation mode will be selected once again based on the variation of indoor temperature.

2.7 After the operation indicator has been flickering for 20 seconds, it will turn light steadily (i.e. the determination of operation mode will start in 20 seconds.)

2.8 This mode has timing function, does not have sleep function.

2.9 Under this operation mode, the temperature can be set and adjusted by remote control.

3. Refrigeration mode

3.1 Under the refrigeration mode, the range of temperature set by remote control is between 16 and 32 .

3.2 Shut-down of four-way valve;

3.3 The condition on which the compressor starts is that the indoor

temperature reaches more than the temperature set plus 1 while the condition on which the compressor shuts down is that the indoor temperature reaches less than the temperature set minus 1 .And when the indoor temperature is equal to that set, the original operation mode will be kept.

3.4 Under the mode of refrigeration, the function of preventing indoor coiled pipe from being frozen will be effective.

3.5 The indoor wind speed will be as set. And the pendulum leaves will work according to the instructions sent by remote control.

4. Dehumidification operation

4.1 The temperature range set and controlled is between 16 and 32 .
The temperature will be set by remote control.

4.2 The four-way valve is shut down.

4.3 The wind speed gear-changes to “mute”. And the pendulum leaves works according to the instructions sent by remote control;

4.4 The function of preventing indoor coiled pipe from being frozen is effective.

4.5 When the indoor temperature reaches less than 16 , the function of dehumidification is out of use.

4.6 When the indoor temperature reaches more than 16 , the compressor will be switched on and work intermittently. The time when the compressor shuts down depends on T ring and T ring-T set.

When the compressor is shut down, the outdoor fan and indoor fan will stop working.

When $T_{ring} \geq 23$ °C

$T_{set} < T_{ring} - 1$, the compressor will be working for 8 minutes and then stopping for 3 minutes in cycles.

$T_{set} \geq T_{ring} - 1$, the compressor will be working for 3 minutes and then stopping for 6 minutes in cycles.

And when $T_{ring} < 23$ °C

$T_{set} \leq T_{ring} - 1$, the compressor will be working for 3 minutes and then stopping for 4 minutes in cycles.

$T_{set} > T_{ring} - 1$, the compressor will be working for 3 minutes and then stopping for 6 minutes in cycles.

5. Function of ventilation control

5.1 Under the mode of ventilation, the outdoor fan assembly will always be shut down.

5.2 The indoor fan will operate as set in the respect of air quantity without the gear- change of "high power".

5.3 The pendulum leaves will work according to the instructions sent by remote control.

6. Heating function

6.1 Under the mode of heating, the temperature range set is between 16 and 32 °C. And the temperature will be set by remote control.

6.2 When the air conditioner is powered on, the outdoor fan, four- way valve and compressor will start at the same time while when it is shut down, the outdoor fan and compressor will be shut down at the same time and so will the four- way valve after 2 minutes' delay.

6.3 Under the mode of heating, the compressor can not be shut down within 3 minutes after it is powered on unless the operation mode is changed or the air conditioner is turned off.

6.4 There is a 3 temperature compensating function. The temperature measured at the in-blow vent minus 3 automatically can be regarded as that compared with the temperature set (This function does not exist under other circumstances).

6.5 According to the temperature set, the condition upon which the compressor will be switched on is indoor temperature \leq temperature set-1 While the condition upon which it will be switched off is indoor temperature is indoor temperature \geq temperature + 1 . When the indoor temperature is equal to that set, the original operation mode will be kept.

6.6 Indoor fan control:

6.6.1 Heating operation and prevention of cold wind

When the compressor works:

1. During the rising process of the temperature of coiled pipe, the indoor fan will not start if the temperature of the coiled

pipes is less than 25 .

2. When the temperature of coiled pipe reaches less than 35 But more than 25 , The indoor fan will work under the mode of “ mute". If the temperature of coiled pipe ascends to 25 and then descends, it will stop working only when the temperature is lowered to 22 .
3. When the temperature of coiled pipe reaches more than 35 , the indoor fan will operate as set in the respect of wind speed. If the temperature of coiled pipe ascends to 35 And then descends, it will enter into the operation mode of “ mute" only when the temperature is lowered to 30 .

6.6.2 Afterheat-blowing function:

6.6.2.1 When the compressor stop working:

1. When the temperature of coiled pipe is more than 35 , the indoor fan will operate as set in respect of wind speed.
2. When the temperature of coiled pipe is more than 25 , but less than 35 , The indoor fan will operate under the mode of “ mute"
3. When the temperature of coiled pipe is less than 25 , the indoor fan will stop working.

6.6.2.2 The afterheat-blowing function when the air conditioner is just

shut down: If the temperature of indoor coiled pipe reaches more than 30 , The indoor fan will operate under the mode of “ mute"; If

it lowers to less than 30 °C, the indoor fan will be shut down; And the time when the afterheat blows will last less than 40 seconds after the indoor fan is turned off.

6.7 Defrosting operation:

6.7.1 The conditions upon which the outdoor sensor goes into operation are as below:

1. Under the circumstance of heating, if T external coiled pipe is at the temperature of less than -6 °C which lasts 2 minutes and the accumulated working time of compressor reaches more than 50 minutes (if there is any power cut-off or shut-down by remote control, the accumulated working time of compressor shall be re-calculated), the defrosting interval will be more than 50 minutes and the compressor will be working 5 minutes continually.
2. If there is any damage to the external coiled pipe, the accumulated working time of compressor will reach 50 minutes (if there is any power cut-off, shut-down by remote control or defrosting, the accumulated working time of compressor shall be re-calculated) and the defrosting operation will last 10 minutes.

6.7.2 Once one of the following conditions is satisfied, the defrosting will end:

1. The temperature of T external coiled pipe is more than 12 °C.
2. Defrosting duration is more than 12 minutes.

6.7.3 The requirements of defrosting operation:

1. Sleep indicator flickers at the speed of 1 time per second
2. When defrosting operation starts, the compressor and indoor fan will stop working while outdoor fan and four-way valve will continue to work.
3. The four-way valve and outdoor fan will stop operating in 30 seconds.
4. 15 seconds after that, the compressor starts and goes into defrosting operation.
5. After the defrosting ends, the compressor stops working. And the four-way valve and outdoor fan begins to work in 20 seconds.
6. 20 seconds after that, the compressor starts and goes into heating operation. And the indoor fan enters into the prevention mode of cold wind.

6.8 Auxiliary electric heating function

6.8.1 Only if the following conditions are satisfied under the heating operation, can the auxiliary electric heating go into operation automatically.

- a. The compressor works for 4 minutes by heating pump
- b. Indoor temperature is less than 22 ;
- c. The temperature set-indoor temperature is more than 3 ;

- d. Indoor fan goes into operation;
- e. Indoor coiled pipe temperature is less than 48

6.8.2 Once one of the following conditions is satisfied, auxiliary electric heating operation will end:

- a. Indoor temperature is more than 22 .
- b. The temperature set –indoor temperature is less than 2 .
- c. When Indoor coiled pipe temperature is more than 52 , the electric heating operation will end.
- d. Indoor temperature sensor becomes abnormal.

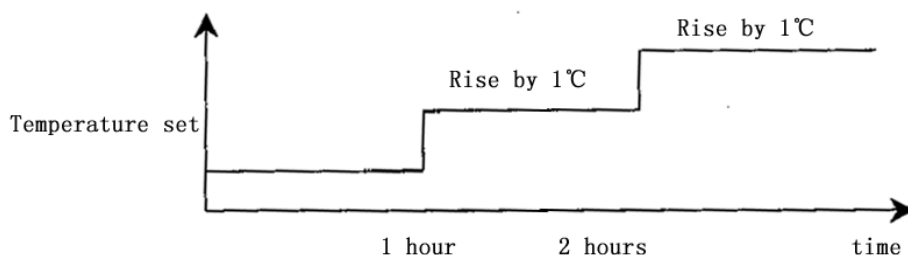
6.8.3 If compressor or indoor fan stops working, the electric heating will stop operating as well.

6.8.4 During the operation of compressor, if the auxiliary electric heating stops working, it can be restarted only in 1 minute.

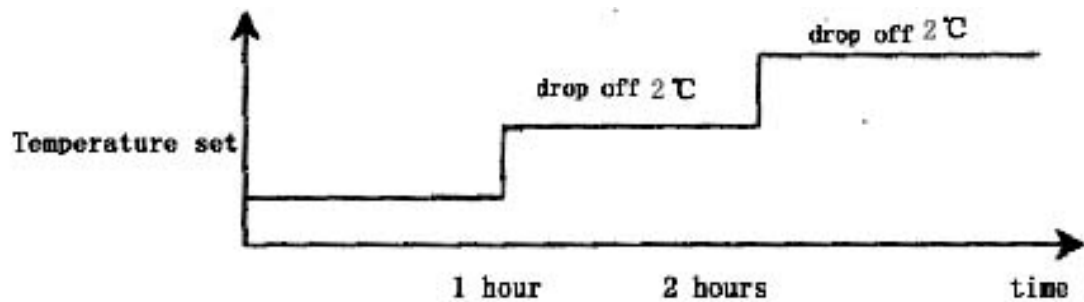
7. Sleep operation

7.1 When the air conditioner enters into the mode of sleep, the indoor wind speed will turn into the air quantity of “mute”.

7.2 When the sleep operation goes under the mode of refrigeration, the temperature set rises by 1 automatically every one hour. And the air conditioner will be powered off after sleep mode has worked for 7 hours.



7.3 When the sleep operation goes under the mode of heating, the temperature set drops by 2 automatically every one hour. And the air conditioner will be powered off after sleep mode has worked for 7 hours.



7.4 When the button of mode selection is pressed down, the function of sleep will be cancelled.

7.5 Sleep operation is effective under the modes of refrigeration and heating. When sleep button is pressed down, the sleep operation can begin or end.

7.6 Sleep function does not exist under the automatic mode, the situation of dehumidification or the circumstance of ventilation.

8. Timing operation

8.1 When timing is set, timing indicator will turn light.

8.2 The time set by timing is 12 hours at most. The timing unit is 1 hour. Even if the operation mode is changed, the timing function will still work.

8.3 Power-off at a fixed time

The power-off at a fixed time can be set only if the air conditioner is on. And it continues to work though the power-off at a fixed time has been already set. When it comes to the fixed time, the indoor and outdoor fans will be shut down.

8.4 Power-on at a fixed time

The power-on at a fixed time can be set only if the air conditioner is on. And it continues to be off though the power-on at a fixed time has been already set. When it comes to the fixed time, the indoor and outdoor fans will start to operate.

9. Emergency switch

When the soft-touch switch is pressed, the air conditioner will be powered on and the operation indicator will flicker (1 time per second). And it goes into the mode of automatic operation in 20 seconds. When the soft-touch is pressed once again, it will be powered off. When the air conditioner goes under the mode of automatic operation, the air door will assume the appearance of automatic air door. Under the mode of heating or refrigeration, the temperature set will be 24 and the wind speed will turn that under the “high power” mode. Under the dehumidification operation, the temperature set will be T ring-2 and the air conditioner can work upon the instructions sent by remote control.

10. Overload control and various protection functions:

10.1 Temperature control (overheat protection).

10.1.1 This function can only be applied to the mode of heating, not others.

10.1.2 When the temperature of indoor coiled pipe reaches more than 57 , outdoor fan will stop working.

10.1.3 When the temperature of indoor coiled pipe drops to less than 52 , outdoor fan will resume to operate normally.

10.2 Temperature cut-off control function (overheat protection)

10.2.1 This function can only be applied to the mode of heating, not others.

10.2.2 When the temperature of indoor coiled pipe reaches more than 64 which lasts more than 10 seconds, the compressor and outdoor fan will all stop working.

10.2.3 After 3 minutes' shut-down, the compressor will resume to operate if the temperature of indoor coiled pipe drops to less than 52 .

10.3 Function of preventing indoor coiled pipe from being frozen (supercooling protection).

10.3.1 This function can only be applied to the operation mode of refrigeration or dehumidification, not others.

10.3.2 When the temperature of indoor coiled pipe drops to -2

which lasts more than 2 minutes, the compressor will stop operating and the indoor fan will go by air quantity set.

10.3.3 When the compressor stops working, it can only be restarted only if the temperature of indoor coiled pipe rises to more than 7 or the power-off of the compressor lasts more than 6 minutes.

10.4 Protection function of short or open circuit of temperature sensor

10.4.1 Powered on, when it is detected that the T ring signal sent by indoor environment temperature sensor is abnormal, the air conditioner will work under the mode of heating and will not be powered off if the signal received from remote control is “heating” or it will work under the mode of refrigeration and will not be powered off if the signal received from remote control is “refrigeration” or it will work for 8 minutes and then stop for 3 minutes with the wind speed of “mute cycle dehumidification” if the signal received from remote control is “dehumidification”. Besides, the signal of automatic mode sent by remote control will not be effective, nor will the signal of automatic button power-on and the related breakdown can be indicated at the same time.

10.4.2 When it is detected that the T internal coiled pipe signal sent by indoor coiled pipe temperature sensor is abnormal, the freezing-proof, cold-wind-proof and overheat-proof functions

will be screened. Under the mode of heating, when the compressor is powered on, indoor fan will be started after 30 seconds' delay with the wind speed as set while when compressor is powered off, indoor fan will be turned off after 30 seconds' delay and the related breakdown can be indicated at the same time.

10.4.3 When it is detected that the T external coiled pipe signal sent by outdoor coiled pipe temperature sensor is abnormal, the air conditioner will work for 50 minutes, defrost for 10 minutes and heat in cycles if the signal received from remote control is "heating" and the related breakdown can be indicated at the same time while the air conditioner will not be powered off and will operate normally if the signal received from remote control is heating or defrosting or ventilation and the related breakdown can be indicated at the same time.

10.5 disposal of indoor PG electric motor abnormality

When indoor PG electric motor is loaded with voltage, the indoor fan will operate under the mode of "weak wind" automatically if the pulse signal feed backed by the indoor electric motor is not detected within 12 seconds. If the feedback signal detected is normal, the indoor fan will resume the turning speed set and the related breakdown indication will be disappear.

10.6 Function of charatron display

When the controller is normal, there will be no charatron display under the circumstance of power-off. When air conditioner is powered on, the charatron will display room temperature under the normal situation. If the temperature set is changed, the charatron will show the temperature set which sparkles at the rate of 1 time per second. Then it will display room temperature once again in 5 seconds. The display range of room temperature is 0~79 .

11. Function of breakdown indication

HS, HSA series (charatron); HV (VFD display)

Breakdown cause	Display way	Display priority class
PG feedback abnormality	E4	1
T ring abnormality	E1	2
T internal coiled pipe abnormality	E3	3
T external coiled pipe abnormality	E2	4

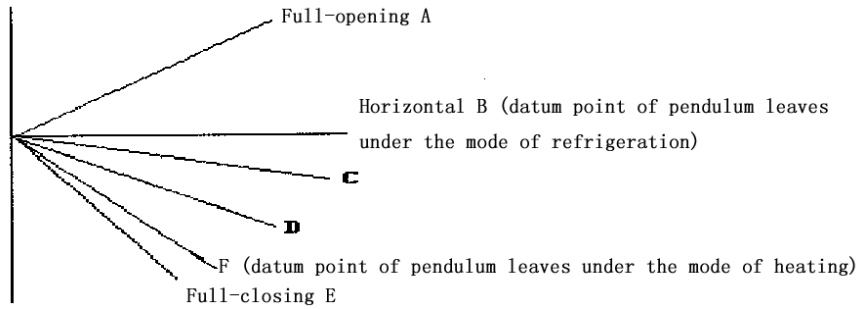
12. Adjustment function of air door direction by pendulum leaves

- 12.1 When the air conditioner is powered on for the first time, the pendulum leaves will move to the direction of full-opening and then to the direction of full-closing wherever they are placed.
- 12.2 When the air conditioner is powered off, the pendulum leaves will move up to “close” position immediately wherever they are placed after the fan comes to an end.
- 12.3 Under the mode of refrigeration, the pendulum leaves will first move to the full-opening position and then move to the horizontal position and at last move under the mode set while under the mode of heating, they will first move to the full-opening position and then backswing by 5° and at last work under the mode set (for details, please see the following diagram).
- 12.4 Pendulum wind: automatic air door and manual air door will be controlled by one button.
- 12.5 When the pendulum leaves move from full-opening position to full-closing position at the time of power-on or from starting position to full-closing position at the time of power-off, the speed will be 20° per second while the speed under the instruction situation will be 5° per second.

Swing angle under the mode of refrigeration: BD is 35 ± 2

Swing angle under the mode of heating: FC is 40 ± 2

Backswing angle under the mode of heating: EF is 5



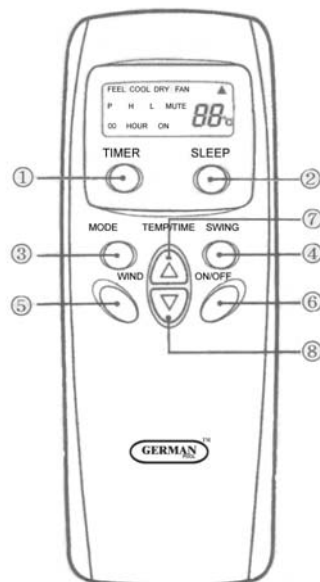
13. Self-checking function of controller

After the automatic button is pressed, the air conditioner will be powered on and enter into the process of self-checking:

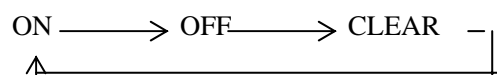
Buzzer sounds two times → operation indicator turns on → timing indicator turns on → compressor acts → four-way valve acts → outdoor fan acts → electric heating acts → indoor fan acts → buzzer sounds one time which means that air conditioner goes into the state of order-waiting and the self-checking comes to an end.

14. Remote control

Name and functions of the button on the remote control

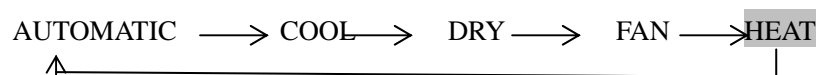


(1) Timing ON/OFF button: set the timing mode. After each pressing, the mode will be changed. It shows in the following display.



(2) Sleeping button: which enables you to start the automatic operation in sleeping mode and stops by pressing on it again.

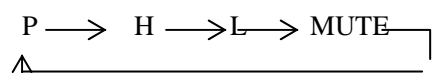
(3) Selection button for operation mode: which enables you to select different operation modes, after each pressing, the operation mode will be changed. It shows in the following display.



Remarks: Only cool type remote control has no heat mode

(4) Wind direction adjusting button: press the button, the horizontal airflow direction plate can adjust automatically. When you have the desired wind direction, please press it again, the airflow direction plate will maintain the same position.

(5) Fan speed selection button: you can select fan speed from “Power”, “High”, “Low”, and “Mute”.



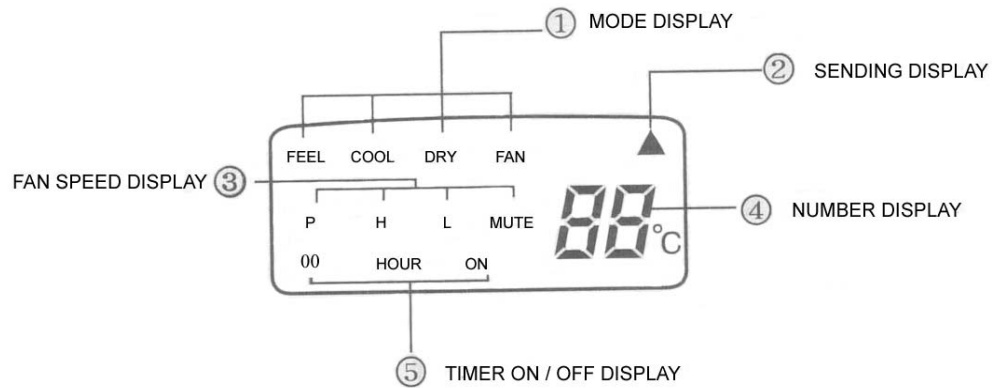
(6) ON/OFF button: you can start the air-conditioner by pressing this button and stop its operation by pressing it again.

(7) Setting button▲: Press the button, the setting temperature or timer

will increase.

- (8) Setting button ▼: Press the button, the setting temperature or timer will decrease.

Display



- (1) Mode display: press the MODE button, it shows the current operation mode. You can select “Automatic”, “Cool”, “Dry”, and “Fan” “heat” operation mode. (cold wind type has no heating mode)
- (2) Sending display: when the remote control sends correct and effective signal each time, the sign displays intermittently each time.
- (3) Fan speed display: press the “WIND” button, the fan speed will display. You can select fan speed from “Power”, “High”, “Low”, and “Mute”.
- (4) Number display: which displays the setting temperature, in the circulation operation mode, the temperature number does not display.

(5)Timer ON/OFF display: which displays the timer states, “the timer ON” and “the timer OFF” do not set at the same time.

Remark: For illustration, all display items are listed here. When the mode operates, the relevant items display on the remote control.

Application

Fix batteries

- (1) Slide open the cover according the direction indicated by arrowhead.
- (2). Put into two AAA new batteries, position the batteries to right electric poles (+&-).
- (3)Put back the cover.

Make sure to connect the wire to independent power source socket before you use the remote control.

Automatic operation mode

- (1)Press the MODE button, select the automatic operation mode.
- (2)Press the TEMP/TIME button, set the temperature, temperature can be set at 1 °C difference range from 16-32 °C.
- (3)Press the WIND button, you can select fan speed from “Power”, “High”, “Low”, “Mute”.
- (4)Press the ON/OFF button, the operation indicator is on, the air-conditioner starts to operate in the Automatic mode. Press the button again, the air-conditioner stops.

Cooling/heating operation mode (cold wind type has no heating operating)

- (1) Press the MODE button, select the Cooling operation mode.
- (2) Press the TEMP/TIME button, set the temperature, temperature can be set at 1 °C difference range from 16-32 °C.
- (3) Press the WIND button, you can select fan speed from “Power”, “High”, “Low”, “Mute”.
- (4) Press the ON/OFF button, the operation indicator is on, the air-conditioner starts to operate in the Cooling mode.
Press the button again, the air-conditioner stops.

Drying operation mode

- (1) Press the MODE button, select the Drying operation mode.
- (2) Press TEMP/TIME button, set the temperature, temperature can be set at 1 °C difference range from 16-32 °C.
- (3) Press the ON/OFF button, the operation indicator is on, the air-conditioner starts to operate in the Drying mode.
Press the button again, the air-conditioner stops.

Remark: In the drying operation mode, the fan speed is automatically set to “Mute”.

Circulation operation mode

- (1) Press the MODE button, select the Circulation operation mode.
- (2) Press the WIND button, you can select fan speed from “High”, “Low”, “Mute”. In the circulation operation mode, you cannot select the speed of “Power”.
- (3) Press the ON/OFF button, the operation indicator is on, the air-conditioner starts to operate in the Circulation mode.
Press the button again, the air-conditioner stops.

Remark: In the circulation operation mode, you cannot set the temperature.

Timer setting

□Set the “Timer ON” (it operates only when the air-conditioner shuts off.)

(1) Press the TIMER button, select the “Timer ON”, the remote control display “00 HOUR ON”; “ON” displays intermittently.

(2) Press the TEMP/TIME button, set the time. When “ON” stops intermittently, the “Timer ON” can be set.

□Set the “Timer OFF” (it operates only when the air-conditioner is running.)

(1) Press the TIMER button, select the “Timer OFF”, the remote control display “00 HOUR OFF”; “OFF” displays intermittently at the same time.

(2) Press the TEMP/TIME button, set the time. When “OFF” stops intermittently, the “Timer OFF” can be set.

Remark: The remote control can only be set within 12 hour intervals.

Sleeping operation mode

(1) Press the SLEEP button, the sleeping indicator light of indoor unit flashes.

(2) After the setting of sleeping mode, the cooling operation enables the set temperature to increase 1 °C after 1 hour and another 1 °C automatically after another hour.

(3) After the setting of sleeping mode, the cooling operation enables the set temperature to increase 2 after 1 hour and another 2 automatically after another hour.

(4) The air-conditioner runs in sleeping mode for 7 hours and stop automatically.

Remark: 1. in sleeping mode the fan speed changes automatically to “Mute”.

2. Press the MODE button, WIND button or ON/OFF button, the

remote control clears sleeping mode away.

Attention:

- Aimed the remote control at the receiver on the air-conditioner.
- The remote control should be within 8 meters away from the receiver.
- No obstacles between the remote control and receiver.
- Don't drop or throw the remote control.
- Don't put the remote control under the strong sunrays or heating facilities and other heating sources.
- Use two AAA batteries, don't use rechargeable batteries.
- Take the batteries out of remote control before stop using for long.
- When the noise of transmitting signal can't be heard from indoor unit or the transmission symbol on the display screen doesn't flare, batteries need be replaced.
- If reset phenomenon occurs on pressing the button of the remote control, power of the batteries is deficient and need to be replaced.

Chapter 5 Main Technical Data

Type	ASW-H24A4/HS AR	ASW-24A4/HS AR
	ASW-H24A4/HS R	ASW-24A4/HS R
Rated cooling capacity (W/BTU)	6000/22000	6000/22000
Rated heating capacity (W/BTU)	6600/22520	
Rated cooling current (A)	9.8	9.8
Rated heating current (A)	9.8	
Rated cooling power (W)	2150	2150
Rated heating power(W)	2150	
Air circulate (m ³ /h)	1000	1000
Power supply (V, Hz)	220~240, 50	220~240, 50

Refrigerant		R407C	R407C
Dehumidifying capacity(Kg/h)		2.4	2.4
EER		2.8	2.8
Noise dB(A)	Indoor unit	48	48
	Outdoor unit	56	56
Dimensions (mm)	Indoor unit	335×1153×190	335×1153×190
	Outdoor unit	300×800×690	300×800×690
Packing Dimension(m m)	Indoor unit	1200×390×260	1200×390×260
	Outdoor unit	930×410×760	930×410×760
Weight (kg)	Indoor(net/gross)	19/21	19/21
	Outdoor(net/gro ss)	54/57	53/56
Applicable room area□m ² □		25□38	25□38

Type	ASW-H24B4/HS AR	ASW-24B4/HS AR
	ASW-H24B4/HS R	ASW-24B4/HSR
Rated cooling capacity (W/BTU)	7000/24000	7000/24000
Rated heating capacity (W/BTU)	7700/26280	

Rated cooling current (A)		11.0	11.0
Rated heating current (A)		11.0	
Rated cooling power (W)		2420	2420
Rated heating power(W)		2420	
Air circulate (m ³ /h)		1100	1100
Power supply (V, Hz)		220~240, 50	220~240, 50
Refrigerant		R407C	R407C
Dehumidifying capacity(Kg/h)		2.8	2.8
EER		2.9	2.9
Noise dB(A)	Indoor unit	49	49
	Outdoor unit	57	57
Dimensions (mm)	Indoor unit	335×1153×190	335×1153×190
	Outdoor unit	300×800×690	300×800×690
Packing Dimension(m m)	Indoor unit	1200×390×260	1200×390×260
	Outdoor unit	930×410×760	930×410×760
Weight (kg)	Indoor(net/gross)	19/21	19/21
	Outdoor(net/gross s)	57/60	56/59
Applicable room area□m ² □		30□44	30□44





NOTE: 1.Specifications are standard values calculated based on rated operation conditions, they will vary in different working condition

2. Our company has quick technical improvement. There will be no prior notice for any change of technical data. Please read the nameplate on the air conditioner

Chapter 6 Dismantling Procedure

Indoor Unit

Operating step	Photo
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<p>1. To remove the panel and connecting wire cover.</p> <ul style="list-style-type: none">· Take off the screws of the connecting wire cover and remove the cover.· Then remove the panel.	
<p>2. To remove the air filter.</p>	
<p>3. To remove the inter frame assembly</p> <ul style="list-style-type: none">· Take off three screws of inter frame assembly· Then take off the inter frame assembly	
<p>4. To remove the electric control box</p> <ul style="list-style-type: none">· Take off one screw· Loose one obverse clip· Remove the electric control box	

5. To remove the water-collecting plate assembly

- Loose three obverse clips
- Take off the electric control box

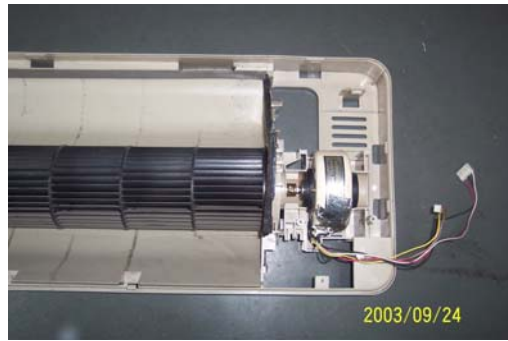


6. To remove the evaporator assembly

- Take off one screws of right locating cover and two screws of left locating cover
- Remove the pipe strap
- Remove the evaporator assembly






7. To remove the through-flow fan
- Take off the screws of though-flow fan
 - Remove the though-flow fan



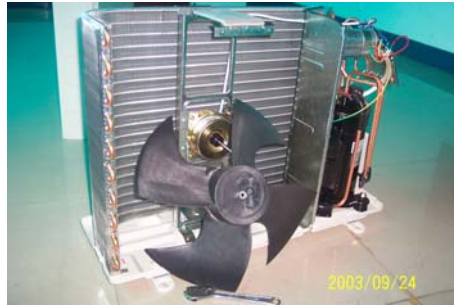
8. To remove the motor
- Take off three screws of right locating cover
 - Remove the motor



Outdoor Unit

Operating step	Photo
<p>1. To remove the top cover assembly</p> <ul style="list-style-type: none">• Take off six screws of top cover	 <p>The top photo shows the exterior of the outdoor unit with the AUX logo and Chinese characters '奥克斯'. The bottom photo shows the interior of the unit with the top cover removed, revealing the condenser coils and fan.</p>
<p>2. To remove the panel assembly</p> <ul style="list-style-type: none">• Loose screws of panel assembly• Take off panel	 <p>The photo shows the panel assembly being removed from the outdoor unit, revealing the fan and internal components.</p>
<p>3. To remove the right plate assembly</p> <ul style="list-style-type: none">• Loose nine screws of left plate assembly• Take off right plate	 <p>The photo shows the right plate assembly being removed from the outdoor unit, revealing the internal components.</p>

4.To remove the axial-flow fan and fan motor



5.To remove the electric assembly



Chapter 7 Brief introduction of installation

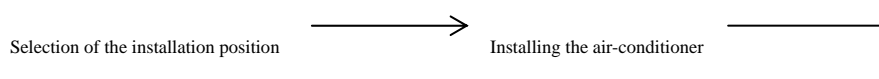
The installation of air-conditioner should meet with the “Installation Instruction”.
The machine must be installed correctly by professional technicians according to the “Installation Instruction”.

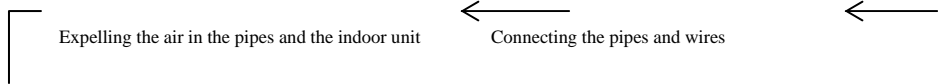
Guide to customer

- The customer should provide a suitable power supply source, its voltage should be in the range of 90-110% of its rated voltage.
- The power supply circuit should have MCB leakage protection. The capacity should be more than 1.5 times of the maximum current.
- Must use independent circuit and suitable grounding socket matching with the plug of air-conditioner.
- The wiring must be installed by qualified electrician according to the electrical safety requirements.
- The air-conditioner must be well grounded, the switch of the main power of air-conditioner must be reliably grounded.
- The power supply wire, must be changed by qualified electrician.

Installation Instruction

Installation order:



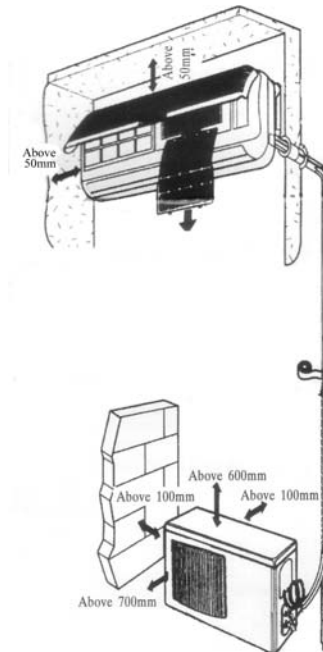


→ Testing

Selection of the installation position

Indoor Unit

- There is no heating and steaming nearby.
- No obstacles for installation from nearby.
- Keep good air circulation.
- Convenient to adopt measures to noises.
- Don't install them near the doorway.
- Make sure to have the distance specified in the picture between the wall, furniture and other obstacles.
- 2 meters high above the floor.



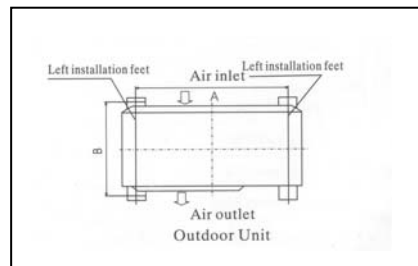
source
position
reduce
ceiling,

Outdoor Unit

- In case that you put up a canopy to protect it from rains and sunrays, pay attention not to cause any obstacles for the heating dispersion for the condenser.
- Don't keep animals or plants near the installation location for the hot air from the outdoor unit will affect them.
- Make sure to have the distance specified in the picture between ceiling, wall, furniture and other obstacles.
- Stay away from heating source and inflammable air.
- The installation base and supporting frame should be strong and secure. The machine should be at a level surface.

Installation of the Outdoor Unit

- The outdoor unit must be firmly fixed avoid falling in strong wind.
- Install on the cement base as in the drawing.
- If it is installed at seaside or at a place above the ground and with strong wind, the AC should be installed against the wall to ensure the normal operation of the fan and the blocking plate should be used.

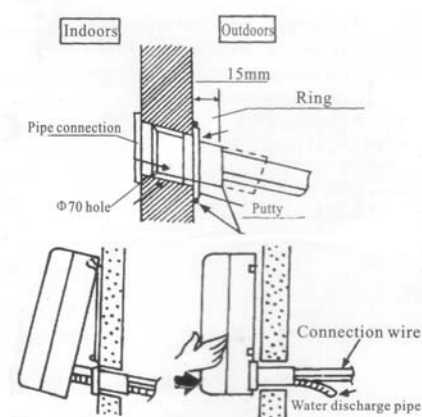


to
high

- If it is an overhanging installation, the structure of the mounting wall should be made of solid, cement or materials with equivalent strength, and of sufficient support capacity. Otherwise, measures such as reinforcement, support or vibration damping should be adopted.

Installation of the Indoor Unit

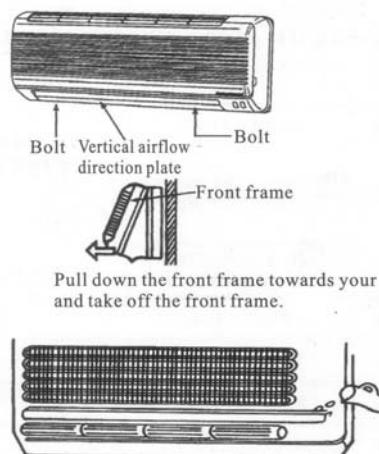
- First make changes to wall and make sure that is hard and secure. Using four “+” type screws to fasten the installation board onto the wall. Keep it level in horizontal direction and perpendicular in vertical direction. Otherwise it might cause water drips when air-conditioner is running in cooling operation.
- Drill 70mm diameter pipe hole at the left lower or right lower side of the installation board. The hole shall slant outward slightly.



- Hang the indoor unit to the board and make sure the machine is in the middle of the board.
- Push the machine towards the left lower and right lower side of the installation board until the hangers enter tightly into the grooves (it produces “click” sound)

Check the water discharge

1. Take off the frame from the unit cover.
Take off the front frame for



maintenance according to the following steps:

- As shown in the picture on the right, take off two covers from the front frame and then unfasten two fixture screws.
- Pull the front frame towards yourself and take it off.

To put the front frame back, reverse the steps.

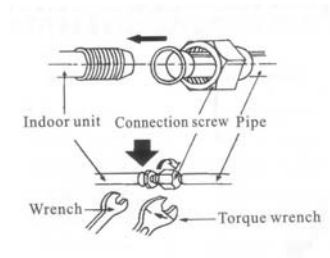
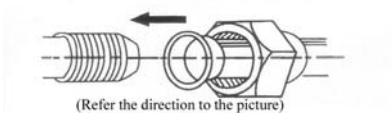
You should check whether the front frame is firmly fixed into the fixture groove on the top.

2. Check the water discharge

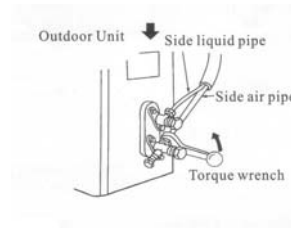
- Pour a cup of water into groove.
- Check whether the water flow through the water discharge hole.

Pipe Connection

- Connect the pipe to the unit: point to the pipe and fasten the connection screw at hand and then by wrench until it is fastened. The fastening direction is the picture.
- Pointing towards the center of pipe, fasten with strength.
- Wrench the screw in the end until you hear



center of
first by
tightly
shown in

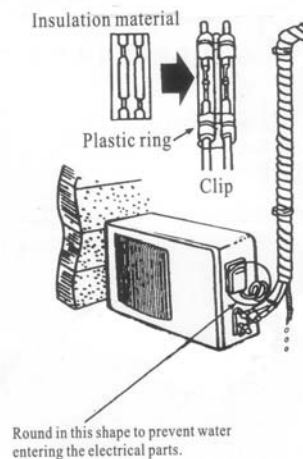


the screw

the

The fixing of pipe

- Wrap up all pipe, water discharge and connection wire from top to below.
- Cover the connection parts with insulation material and fix them with plastic rings.
- Wrap up the pipes with tape alongside and fix them to the wall with clips.

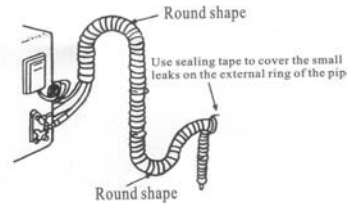


two

the wall
These

steps are usually adopted when outdoor unit is installed below the indoor unit.

- In case that you want to have additional water discharge pipe, the end of pipe should be within certain distance from the floor (to prevent water from draining back into the pipe). Fix it onto the wall so it won't be swayed by wind.
- Wrap the pipes and connection wire below to top.
- Wrap up the pipes that are rounded way shown in the picture so it can water from entering the room.
- Use clips or other fixture to fasten to the walls.

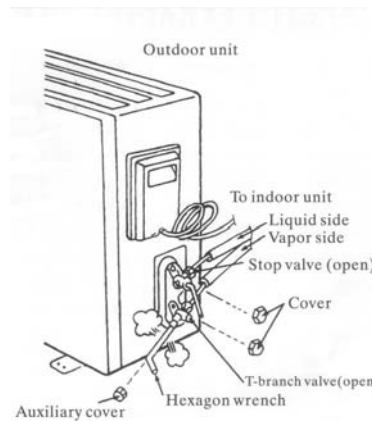


well from
up in the
prevent
the pipes

Expelling the air in the pipes and the indoor unit

Expelling the air: humid air in the refrigerating system might cause trouble of compressor.

- Take off the cover from the stop and T-branch valve.
- Take off the auxiliary cover from T-branch valve.
- Turn the stop valve rod anti-clock an angle of 90 degree, keep it open seconds and close the valve.
- Check whether there is air leakage connection parts of pipes.
- Push the top rod of T-branch valve hexagon wrench to expel air.
- Repeat the third and fifth steps.
- Open the stop and T-branch valve with a hexagon wrench to make the unit operate.
- No leakage is allowed, please check all the piping connection parts. You must test the leakage, generally, it can be tested by soap water.



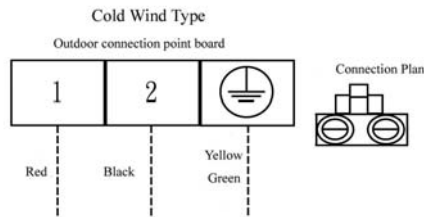
valve
the
wise to
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at all
by

Electrical connection

- Unscrew the screw, take off the control panel cover from the unit.
- Cooling type: connect the wire to the related connection point on the panel and connect the signal connection plug.

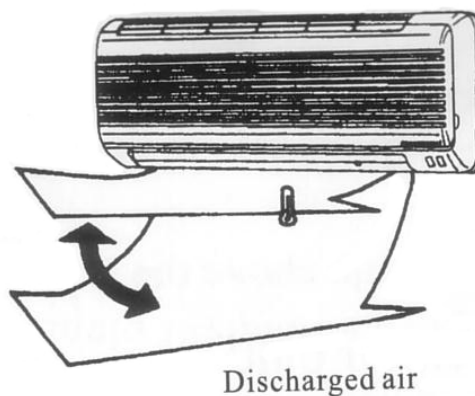
Remarks: yellow and green cord should be connected to connection point with  mark.

- Fasten the fixture of wire to control panel.
- Screw up the control panel cover to its original place.



Test running

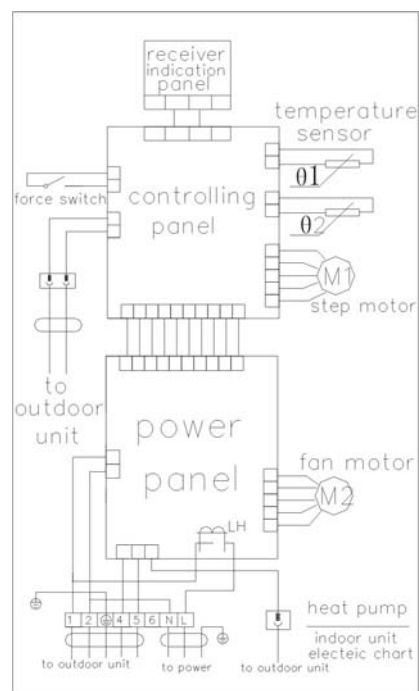
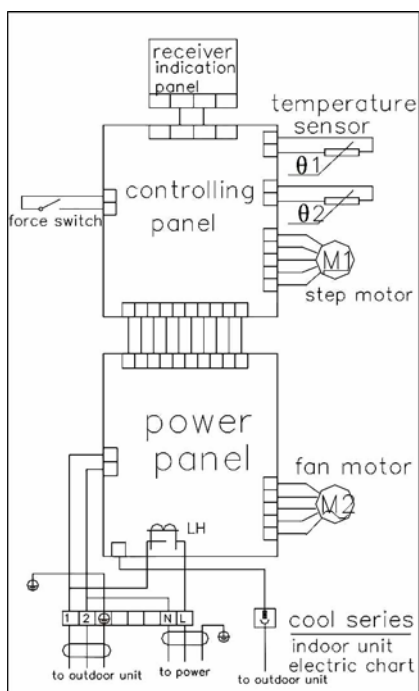
- Make sure that the pipes and wires are connected.
 - Make sure that both the liquid valve and gas valve on the side are completely open.
1. The connection of power source
 - Connect the wire to independent power source socket.
 - Preparation of remote control.
 - Run the air-conditioner in cooling operation mode for 30 minutes or longer.
 2. Performance evaluation
 - Test the out and in air temperature.
 - Make sure that the temperature difference between the out and in air is greater than 8°C.



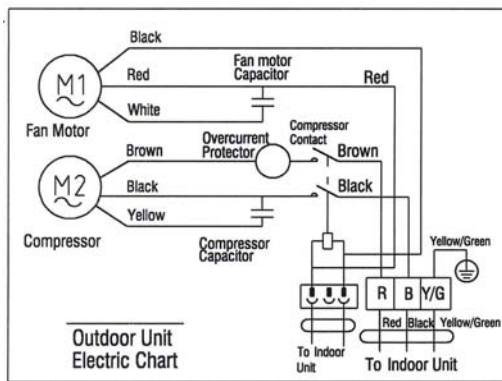
Items of attention

- Fix the machine firmly, otherwise it will produce noise and vibration.
- Install the outdoor unit where it will not disturb your neighbor.

Electrical connection diagram:

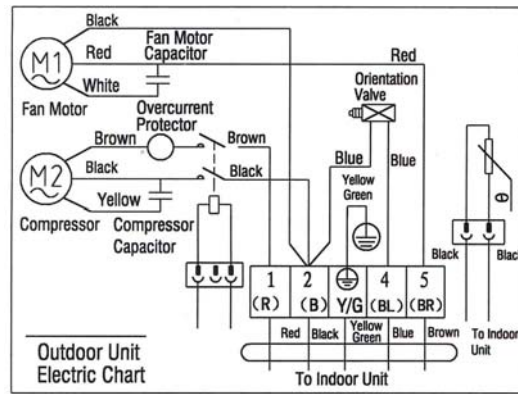


COOL indoor unit electric connection diagram



COOL indoor unit electric chart

HEAT PUMP indoor unit electric connection diagram



HEAT PUMP indoor unit electric chart

Chapter 8 Fault Analysis of the Product Available and

Typical Examples

1 Procedure of deciding the faults

Before maintaining the air conditioner, firstly you should know the phenomena of the faults, decide the location of the faults, analyze the reason the faults occur, and then search for ways to solve the faults. The detailed procedures are: Look, Listen, Touch, Measure, Analyze

Look: Observe air conditioner's running. I.e., vibration; condensation on evaporator; leakage; electrical and mechanical connection, etc.

Listen: Listen to kinds of sounds of the running air conditioner. Identify the abnormal noise from the sounds.

Touch: Touch the key position and position faulty. Touch the temp of air circulation to decide the heating or cooling effect; as far to abnormal sound, besides adopt "listen", you should touch the frame, the pipe of the air conditioner to feel the vibration. Touch the easily heated parts, i.e. compressor, motor, touch them to feel the temp.(Warning: High temp).

Measure: Measure the parameters of the air conditioner and relevant parts by some instruments. Usually used instruments: amperemeter, voltmeter multimeter thermometer, etc, i.e., Use multimeter to test whether the capacitor is open, the insulation of the wire and the parameters of other electrical parts; use the thermometer to measure temp of airflow.

Analyze: Analyze the above results, decide the reason and location of faults, and seek the solutions.

2 Types of Normal Faults

The type of faults is various. The normal faults can come down to six types: leaks, block, open circuit, burnt, lock, scrape.

Leak Mainly is leakage of R407C from cooling pipe system and parts; leakage of condensation water from indoor units; electrical leakage from electrical system and wires.

Block Mainly is block of the pipe system, block of capillary, block of strainer or valve.

Open Circuit Mainly is open circuit of electrical circuit, include: fuse blowing out, connectors broke.

Burnt Mainly is burnout of fan motor, of compressor, of capacitor, of transformer.

Lock Mainly is lock of compressor, four-way valve.

Scrape Mainly is scrape of indoor/outdoor fan and nearby parts, and sound abnormally.

3 Examples

3.1 Leakage and seepage of indoor unit

Reason	Check to be made	Proposed remedy
Improper installation. Indoor drain position is lower than outdoor or slanting installation of indoor unit	Observe if the condensation water drain out, if the indoor unit is declining	Level the indoor unit and adjust the height
Water collecting plate is blocked	Check if the plate is blocked	Remove the matters block the plate
Water collecting plate or drain pipe is cracked	Check the location, ensure if it is cracked	Replace the plate or pipe
Loosen wrap belt, heat-preservation layer is bad or layer behind indoor units is bad	Connecting pipe bleed the water, condensation water exists behind the indoor unit, the wall is wet and turn colors	Rewrap the connecting pipe, add new heat-preservation layer
High ambient relative humidity, low temp/speed of air flow	Water is blow out from air outlet, or water drips from the outlet. Lower speed of air flow	Suggest set the units to dehumidifying mode at high speed of air flow, to lower relative humidity; if the high speed is still felt lower, the fan motor must be checked

3.2 Poor cooling or heating effect

Reason	Check to be made	Proposed remedy
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The cooling/heating load of the room is heavy or the room is not closed perfectly	Calculate the area of the room, check the close of the room	Enlarge the capacity of the units, improve the leakproofness of the room
Insufficient refrigerant R407C	Measure the operating current	Add R407C welding the leaked point
Too much R407C	Air intake temp is too low, condensation water on air intake pipe is too much, temp of discharge is too high	Discharge a little R407C
Effect of heat exchange is too poor	Dust on outdoor condenser and indoor filter is too much	Cleanup filter and condenser
Some of the windings of motor fan is short-circuit, so cause speed decline	Speed of indoor/outdoor fan is too low, air circulation is small	Repair or replace motor
Running condition is too bad	Check if the installation is proper; outdoor temp is too high when heating	Improve the condition, use auxiliary heating
Convexity exists in compressor or valve or lock of compressor	No high-low pressure difference, no clear temp difference in air intake inlet or discharge outlet of compressor	Replace compressor or valve
Openness of check valve is too small or the system partly or completely blocked	Check the openness; partly frost on outdoor pipe system	Open the valve; use high pressure N ₂ to clean out the block

3.3 Big noise or abnormal sound

Reason	Check to be made	Proposed remedy
Foreign matters in wind guide or impeller fan	Check if they are	Clear away
Fan is distorted or in bad balance	Check them	Replace indoor/outdoor fan
Improper location of fan, so fan touches the housing	Open the unit or move the fan manually, find the location	Adjust the position
Bearing of the fan is sluggish or destroyed	Check the bearing	Replace the bearing

Connecting pipe vibrates due to improper installation, or touch the lower frame	Check the connecting pipe	Tidy up the pipes, eliminate the noise source
Outdoor pipes touches	Check the vibration of the pipes, check if them touch	Tidy up the pipes
Abrasion of the parts of compressor	Check if the sound of compressor is normal	Replace the compressor

3.4 Frequently switch on/off of the compressor

Reason	Check to be made	Proposed remedy
Running voltage is too low	Measure the voltage	Add measures of voltage stabilization
Discharge temp is too high caused by insufficient of R407C, compressor is protected by overheat	Check condensation of air intake pipe or measure if operating current is lower than rated current	Check leakage point, welding or add R407C
Temp sensor is too close to evaporator or moved	Check the position of sensor	Adjust the position or replace the sensor
Air inlet/outlet of heat exchange is blocked or low speed of fan motor; indoor air filter is too dirty or blocked	Check indoor/outdoor heat exchange, speed of motor, air inlet/outlet	Cleanup the filter, remove the obstacle
Too much R407C	Too much condensation water on air intake pipe, high operating current	Discharge a little R407C
Bad insulation of compressor, high operating current, overcurrent proof	Check start or operating current	Replace compressor
Improper temp set	Check actual ambient temp	Reset

3.5 Promptly protected by halt after compressor starts

Reason	Check to be made	Proposed Remedy
Insufficient R407C	Little or no condensation water on air intake pipe, operating current is lower than rated current	Add R407C
Mixed with air in the system, vacuum is not good	Power varies when running	Vacuumize the system, recharge R407C

Blocked caused by water or impurity	Operating current is lower than rated current, part of the unit frosts heavily	use high pressure N ₂ to clean out the block, revacuumize and recharge R407C
Damaged compressor, high start current	Check the windings and insulation of compressor and if it is locked	Replace the compressor

3.6 The units blow out cool air when in heating mode

Reason	Check to be made	Proposed Remedy
Four-way valve doesn't work	Listen to the units if there is sounds of valve's working when heating or cooling	Replace the valve
Faults of control interrupter or other relevant circuits of the valve	Check the circuit	Repair or replace the control board
Insufficient R407C causes the insufficient heating capacity	Little condensation water on outdoor air intake pipe, low operating current	Add R407C
Connexity of compressor	Same temp of air intake inlet and discharge outlet of the compressor, no condensation in air intake inlet	Replace the compressor

3.7 The units doesn't work

Reason	Check to be made	Proposed Remedy
Bad connection of the power plugs, or no power plug	Check the socket	Repair or replace
Outdoor fuse or indoor fuse is burnt	Check if the fuse is good	Replace the fuse
Low voltage	Measure the voltage	Heighten the voltage of the power supply system
Wrong indoor temp set	Measure actual indoor temp, compare to the set temp(in cooling set temp should be lower than the actual, in heating, is higher)	Reset the temp

Wrong running mode of indoor units set	Check if running mode of two indoor units is the same(it is not available if one is heating and another is cooling	Reset
--	---	-------

3.8 Cannot receive the remote control signal

Reason	Check to be made	Proposed Remedy
Damaged remote control or low battery	Check if the indication is normal	Replace the remote control or battery
Short-circuit of connections of main control board to switch board	Check the board	Replace the components
Running mode of two indoor units is not the same	Check if one is heating and another is cooling	Reset
Indoor units are in test mode	Open the air intake grill to see the running mode	Adjust test mode to remote control mode

Remarks The above mentioned “faults” are the faults possibly occur, we will continue to collect the faults and analysis.